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# ARMCO" IRON DUST-RESISTING PRODUCTS



◆ THE AMERICAN ◆  
ROLLING MILL CO.  
MIDDLETOWN, OHIO, U.S.A.



# "ARMCO" IRON RUST-RESISTING PRODUCTS



*The trade-mark ARMCO carries the assurance that iron bearing that mark is manufactured by The American Rolling Mill Co., with the skill, intelligence and fidelity associated with its products, and hence can be depended upon to possess in the highest degree, the merit claimed for it.*

THE AMERICAN ROLLING MILL CO.  
MIDDLETOWN, OHIO

*Licensed Manufacturers under patents granted  
The International Metal Products Co.*

## DISTRICT SALES OFFICES

CHICAGO, 1266 Peoples Gas Bldg.

PITTSBURG, 1832 Oliver Bldg.

DETROIT, 901 Ford Bldg.

ST. LOUIS, 817 New Bank of Commerce Bldg.

NEW YORK, 551 Hudson Terminal Bldg.

CINCINNATI, Union Central Bldg.

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What happened to yellow fever and the plague-bearing mosquito when the United States Government suggested a method for dealing with them?

Were they not stamped out?

The government specialists appointed to find out why steel corroded so rapidly found the reason and suggested a remedy—

They said "Get rid of the harmful impurities and longer life will be obtained".

**THE REASON WHY** Armco-American Ingot Iron has given such great satisfaction is that we employed the remedies suggested by the government and produced an iron practically free from all foreign substances. We did not stop at this point but gave to all the other elements of manufacture the most minute study and care, applying all the resources of our Research Laboratory and all the knowledge gained by experience in the refining plant, the factory and the field. Re-heating, rolling, annealing, galvanizing, and inspection are all in the hands of experts whose instructions are always to work for the improvement of their product. If the same care and study were employed in producing steel that is observed in manufacturing Armco Iron, it would cost almost as much as this pure iron.

Tonnage is the watch word in producing steel.

Quality is the slogan in manufacturing Armco-American Ingot Iron.

The confidence of our customers, the prestige of Armco Iron, and the satisfaction of a big task accomplished is our reward. Armco Iron is made for quality buyers—for discriminating minds, accustomed to purchase the best. The practical man who figures real cost, not first cost alone, will buy pure iron instead of steel when a durable structure is wanted, because he knows from experience that steel rusts quickly while iron has a good long life.

To illustrate this we call your attention to the two nails photographed on next page.





The old fashioned Iron nail is perfectly good after 38 years of service.

The modern steel nail is practically decomposed after only 11 years.

This is only one of thousands of tests in which it has been proved, even **more** forcibly, that **Pure Iron** is better in every way than the best of steels. The evidence collected from all these tests, from the letters of users of our **Armco American Ingot Iron**, from the repeated orders from our customers, from the fact that the Government of the United States uses **Armco American Ingot Iron**, all point to one definite conclusion—**Armco American Ingot Iron** will last longer and resist corrosion better than any other Iron or Steel.

This is the Iron we have pleasure in introducing to you in the various products illustrated in these pages and we feel assured that if you will favor us with a trial order for some of this material, results will prove to you that all our statements are correct. The good results obtained by a trial will cause you to place your future business with us.

When you order an article from a factory or its representatives you naturally expect to get your money's worth. When you buy Steel you do not know what you are getting. When you buy "**Armco Brand**" American Ingot Iron—**Pure Iron** is sent to you and you can guarantee it to your customers as being at least 99.84% **Pure Iron** exactly as we guarantee it to you.

THE AMERICAN ROLLING MILL COMPANY.

MIDDLETOWN, OHIO.



The mark that guarantees the purity of our American Ingot Iron.

ALL PRODUCTS SHOWN IN THIS CATALOG ARE  
ALSO FURNISHED IN STEEL IF REQUESTED



## CORRUGATED SHEETS

MADE FROM EITHER BLACK, PAINTED OR GALVANIZED IRON

CAN BE USED FOR  
SIDING, ROOFING, CEILING, ARCHES, SHUTTERS  
AND AWNINGS

"ARMCO" Brand Sheet Iron when corrugated imparts great strength to the building to which it is applied. Flat sheets will not support their own weight, and, of course, can not add strength to a building if used as siding.

Corrugated sheets are light and durable, and permit the use of a light frame work.

With their lasting and fire-proof qualities, they are superior to other materials for siding, and are also the cheapest in the long run. These sheets being made of "ARMCO" brand Iron are rust resisting and with a guaranteed analysis of at least 99.84% pure Iron.

All the products shown in these pages are made of  
"ARMCO" brand Pure Iron.

Nos. 26 and 24 are more generally used than any other gauges for roofing and siding, although we keep in stock all even gauges from No. 28 to No. 10.

No. 26 is always shipped when no gauge is specified.

When we are furnished with accurate dimensions of a building we cheerfully make estimates as to the amount of material required to cover the same.

## CORRUGATED IRON

### DIFFERENT SIZES WE MANUFACTURE FOR GENERAL BUILDING PURPOSES

BLACK, PAINTED, GALVANIZED.

FIG. 1.



Shows 3 inch Corrugated Iron.

Regular stock sheets for siding are 26 inches wide, and can be furnished in 5, 6, 7, 8, 9 and 10 foot lengths, and from No. 28 to No. 16 gauge.

For roofing we furnish and recommend  $2\frac{1}{2}$ -inch corrugated  $27\frac{1}{2}$ -inch wide after corrugating, this allows for one and one-half corrugation laps with 24 inch covering width.

We carry this in stock galvanized in all standard even lengths, gauges 26, 24, 22 and 20. 3 inch corrugated sheets supplied in all even stock lengths, 26-inches wide. Other lengths and widths rolled to order.

One of the great advantages of corrugated roofing and siding is its ease of application to skeleton framing, thus making it a low cost, yet durable and effective construction.

We recommend that end laps on siding should be from 2-inch to 3-inch, and on roofing from 3-inch to 6-inch, depending on the pitch.

We can furnish sheets 12 feet long at 10 cents per square additional, thereby often saving lapping and labor.





## CORRUGATED IRON

### BLACK, PAINTED, GALVANIZED

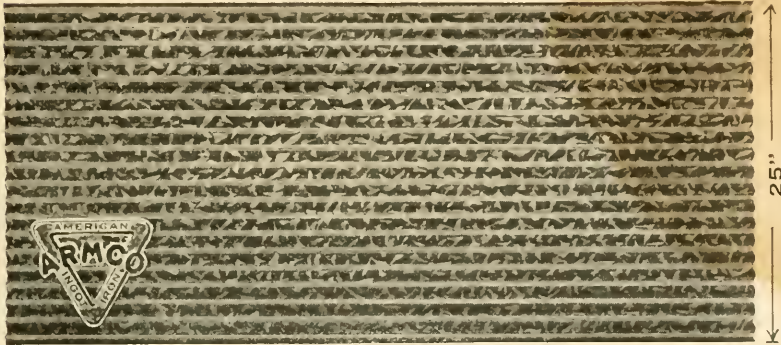


Fig. 2.—Shows  $1\frac{1}{4}$ -inch Corrugated Iron. Corrugations  $\frac{1}{8}$ -inch deep.

Regular stock sheets are 25 inches wide, cover 24 inches from center to center of outside corrugations, and can be furnished in 5, 6, 7, 8, 9 and 10 ft. lengths, No. 22 gauge and lighter.

This size can be used the same as  $2\frac{1}{2}$  inch corrugated sheets. When used for roofing we recommend the 27 inch wide sheets, thus allowing for laps of  $1\frac{1}{2}$  corrugations, and covering width of 25 inches. It is particularly adapted for interior siding, for ceiling large storerooms and warehouses, and for exterior siding, being stiffer than  $2\frac{1}{2}$  inch corrugations.

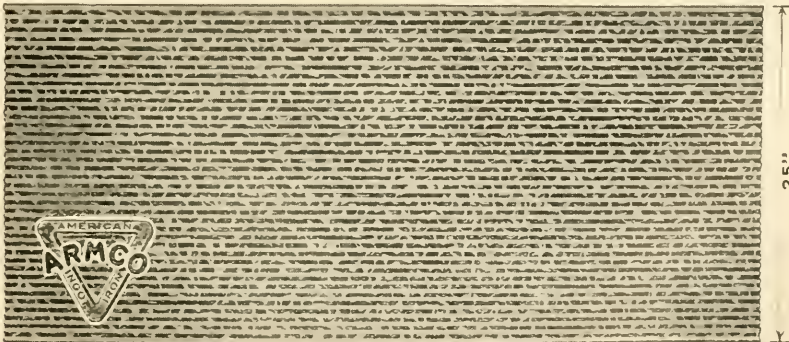


Fig. 3.—Shows  $\frac{5}{8}$ -inch Corrugated Iron. Corrugations  $\frac{1}{8}$ -inch deep.

Regular stock sheets are 25 inches wide by 6 feet long, and cover  $24\frac{1}{2}$  inches when lapped one corrugation, but can be furnished in either 3, 4, 5 or 6 foot lengths, as desired. We can make this size from Nos. 28 or 26 gauge. This is the standard size for ceiling, is cheapest, easiest applied, and best fitted for that purpose. It is also used for interior siding and wainscoting.

## CORRUGATED FLASHING

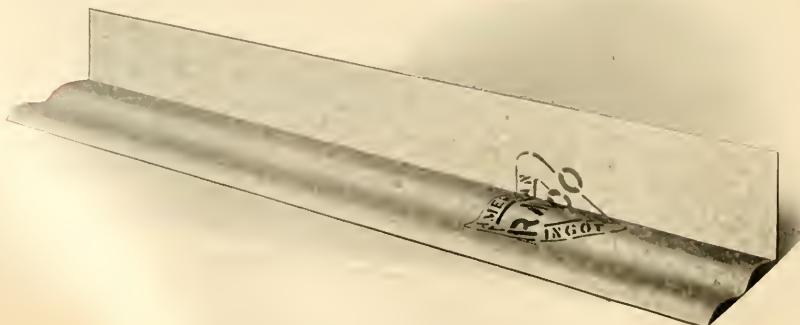
Fig. 4.



2½" ARMCO End Wall Flashing

Where corrugated metal siding is employed, it is often necessary to use end wall or side wall flashing to secure the best appearance and most complete protection. This material is made up in different widths to suit conditions, and is sold by the running foot. The gauges are 20, 22, 24 and 26. End wall flashing is made in 26 inch lengths; side wall flashing any length up to ten feet. The cuts show 2½-inch corrugations. Other widths supplied to correspond to roofing or siding.

Fig. 5.



2½" ARMCO Side Wall Flashing

## CURVED CORRUGATED IRON SHEETS

BLACK, PAINTED, GALVANIZED

Fig. 6.

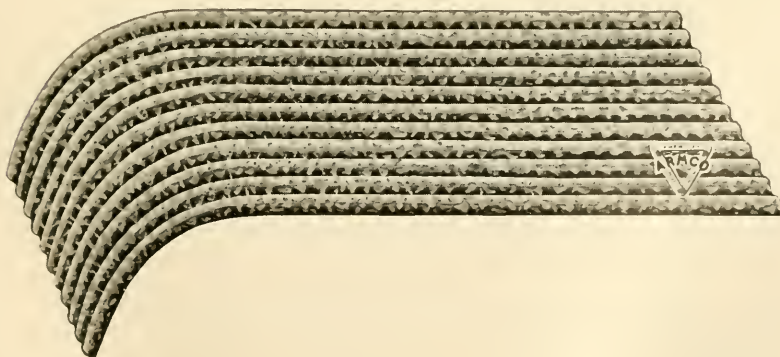


Shows a Corrugated Sheet curved for Roofing.

These sheets can be curved to any radius desired within bending capacity of the material.

We curve them to specifications required, and pay particular attention to exactness. We can furnish curved sheets in either  $2\frac{1}{2}$ " or  $1\frac{1}{4}$ " corrugations, and in lengths from 5 to 12 feet.

Fig. 7.

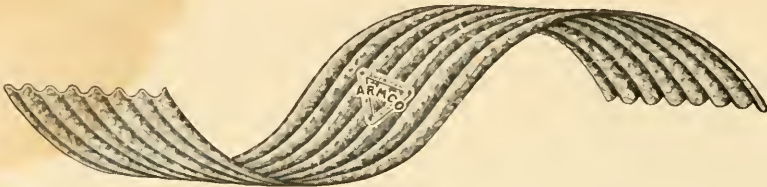


Shows Corrugated Sheet curved at one end for Permanent Awning. Can also be used for shed or porch roofs. Sheets can be furnished in any stock length up to 12 feet.

## CURVED CORRUGATED IRON SHEETS

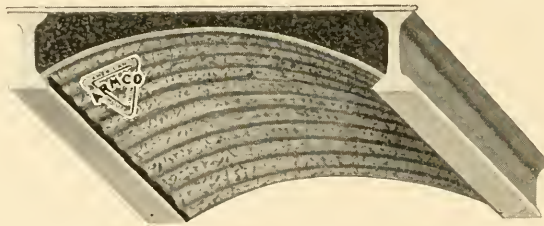
BLACK, PAINTED, GALVANIZED

Fig. 8.



Shows Corrugated Sheet curved at both ends for Ventilators, Verandas, or Awnings.

Fig. 9.



Shows a section of Corrugated Iron Arch, for fire-proof buildings, in which our Corrugated Curved Sheets are used.

In fire-proof buildings these arches form a fine ceiling below and a foundation for the floor above. For strength, lightness, durability, and fire-proof qualities, they can not be excelled.

The strength depends, of course, on gauge of iron used, and also on amount of rise given. Where a very slight rise is necessary, particular attention should be given to gauge used.

We make these from plans and specifications furnished, and guarantee them to fit according to working plans.

**Fire-proof Buildings are the Order of the Day.**





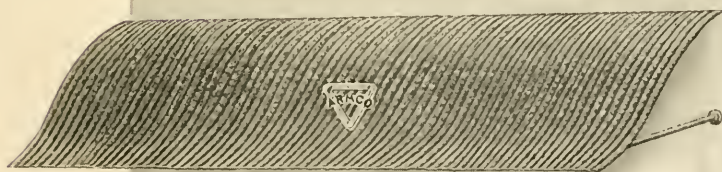
## CORRUGATED IRON AWNINGS

Fig. 10.



Represents Corrugated Awning, with sheets curved on one end, with Iron Frame Supported by Iron Posts.

Fig. 11.



Represents Corrugated Awning, with sheets curved at both ends, supported by Iron Brackets fastened to wall of building.



# "ARMCO" BRAND

## TABLE OF WEIGHTS (without Bands) Galvanized Armco American Ingot Iron Flat Sheets

GAUGES			16			17			18			19			20			21			22			23		
Size of Sheet	Weight of Sheet	Number of Sheets of Bundle	Weight of Sheet	Number of Sheets of Bundle	Weight of Sheet	Number of Sheets of Bundle	Weight of Sheet	Number of Sheets of Bundle	Weight of Sheet	Number of Sheets of Bundle	Weight of Sheet	Number of Sheets of Bundle	Weight of Sheet	Number of Sheets of Bundle	Weight of Sheet	Number of Sheets of Bundle	Weight of Sheet	Number of Sheets of Bundle	Weight of Sheet	Number of Sheets of Bundle	Weight of Sheet	Number of Sheets of Bundle	Weight of Sheet	Number of Sheets of Bundle	Weight of Sheet	Number of Sheets of Bundle
24x 72	31.87	159	28.87	144	25.87	155	0	22.87	100	19.87	159	8	18.37	147	16.87	152	15.37	154	10	10.87	146	14.87	151	9	8.87	145
26x 72	34.53	138	31.28	156	28.03	140	5	24.78	149	21.53	152	7	19.91	150	18.28	146	16.06	150	9	14.06	145	13.06	148	8	12.06	147
28x 72	37.10	140	33.69	108	30.10	151	5	26.09	140	23.10	152	6	21.44	150	19.09	148	17.94	144	7	16.09	143	15.09	146	6	14.09	145
30x 72	40.84	120	36.84	120	32.84	132	5	28.84	132	25.84	144	6	23.44	144	21.09	138	19.44	144	8	17.09	138	16.09	141	7	14.09	140
24x 84	37.10	140	33.69	108	30.10	151	5	26.09	140	23.10	152	6	21.44	150	19.09	148	17.94	144	7	16.09	143	15.09	146	6	14.09	145
26x 84	40.27	161	36.48	146	32.69	163	4	28.9	146	25.11	165	5	23.21	162	21.32	160	19.42	155	8	17.32	160	16.32	163	7	14.32	162
28x 84	43.38	174	39.29	157	35.21	141	4	31.13	156	27.05	135	5	25.01	150	22.96	161	20.92	146	7	18.96	161	17.96	164	6	15.96	163
30x 84	46.48	159	42.11	168	37.73	151	4	33.36	167	28.98	145	5	26.8	161	24.01	148	22.42	157	7	20.01	148	18.01	151	6	15.01	153
24x 96	40.84	120	36.84	120	32.84	132	5	28.84	132	25.84	144	6	23.44	144	21.09	138	19.44	144	8	17.09	138	16.09	141	7	14.09	140
26x 96	46.03	138	41.7	167	37.37	140	4	33.04	142	28.7	143	5	24.54	157	22.37	136	20.37	155	7	17.37	136	15.37	139	6	12.37	141
28x 96	49.57	149	44.9	180	40.24	161	4	35.57	142	30.91	166	5	28.57	143	26.24	157	23.91	143	6	21.24	157	19.24	160	5	16.24	163
30x 96	53.12	159	48.12	144	43.12	172	4	38.12	152	33.12	166	5	30.62	153	28.12	141	25.62	154	6	22.12	141	20.12	144	5	15.12	148
24x 120	57.52	120	52.12	144	47.12	120	3	42.12	152	37.12	166	5	30.62	153	28.12	141	25.62	154	6	22.12	141	20.12	144	5	15.12	148
26x 120	61.14	138	55.14	168	50.31	151	3	44.37	133	39.64	155	4	35.77	146	30.64	134	28.64	149	5	24.64	134	20.64	137	4	15.64	140
28x 120	66.41	133	60.16	180	53.91	162	3	47.06	143	41.41	160	4	38.28	153	33.41	134	30.80	149	5	25.80	134	21.80	137	4	16.80	140
30x 120	70.69	159	64.69	144	59.69	120	2	51.19	172	46.69	149	3	45.04	138	35.19	109	32.43	160	5	27.43	109	23.43	112	4	18.43	115
24x 72	13.87	153	12.37	148	10.87	152	14	10.12	152	9.37	150	15	8.62	147	7.87	150	7.12	150	19	6.12	147	5.12	149	13	4.12	151
26x 72	15.03	150	13.41	148	11.78	153	12	10.97	148	10.16	152	14	8.53	149	7.87	150	7.12	150	19	6.12	147	5.12	149	13	4.12	151
28x 72	16.19	140	14.44	159	12.69	152	13	11.81	154	10.94	153	14	9.34	152	8.53	149	7.87	150	19	6.12	147	5.12	149	13	4.12	151
30x 72	17.34	136	15.57	138	13.39	147	10	12.69	152	11.72	159	9	10.06	151	9.10	147	8.14	146	15	7.14	146	6.14	149	13	5.14	151
24x 84	20.81	146	18.57	159	16.37	147	11	12.69	152	11.72	159	9	10.06	151	9.10	147	8.14	146	15	7.14	146	6.14	149	13	5.14	151
26x 84	17.53	140	15.63	159	13.74	151	11	12.79	153	12.11	154	12	10.94	153	10.06	151	9.10	147	15	7.14	146	6.14	149	13	5.14	151
28x 84	18.88	151	16.84	152	14.8	148	10	13.78	152	12.76	153	12	11.84	153	10.94	153	10.06	151	15	7.14	146	6.14	149	13	5.14	151
30x 84	20.23	142	18.05	144	15.86	150	10	14.77	148	13.76	150	11	12.58	151	11.72	151	10.72	150	14	10.72	150	9.72	149	13	8.72	151
24x 96	23.26	146	21.06	148	18.86	152	9	17.72	159	16.72	159	10	14.8	148	13.76	150	12.58	151	14	12.58	151	11.72	151	10	10.72	150
26x 96	24.61	146	22.41	148	20.21	157	10	18.62	146	17.62	146	11	15.54	149	14.54	149	13.54	148	13	13.54	148	12.54	147	11	11.54	148
28x 96	25.96	151	23.76	153	21.56	157	9	19.54	157	18.54	157	10	16.48	146	15.48	146	14.48	145	10	14.48	145	13.48	144	11	12.48	145
30x 96	27.31	162	25.11	155	22.91	152	8	20.48	152	19.48	152	9	17.45	150	16.45	150	15.45	144	9	15.45	144	14.45	143	10	13.45	144
24x 120	30.61	152	28.41	148	26.21	157	7	22.45	157	21.45	157	8	19.42	150	18.42	150	17.42	144	8	17.42	144	16.42	143	7	15.42	144
26x 120	32.96	152	30.76	148	28.56	157	6	24.40	157	23.40	157	7	21.38	150	20.38	150	19.38	144	6	19.38	144	18.38	143	5	16.38	144
28x 120	35.31	162	33.11	155	30.91	152	5	26.35	157	25.35	157	6	23.32	150	22.32	150	21.32	144	5	21.32	144	20.32	143	4	18.32	144
30x 120	37.66	159	35.46	144	33.26	159	4	28.30	157	27.30	157	5	25.28	150	24.28	150	23.28	144	4	23.28	144	22.28	143	3	19.28	144
24x 72	13.87	153	12.37	148	10.87	152	14	10.12	152	9.37	150	15	8.62	147	7.87	150	7.12	150	19	6.12	147	5.12	149	13	4.12	151
26x 72	15.03	150	13.41	148	11.78	153	12	10.97	148	10.16	152	14	8.53	149	7.87	150	7.12	150	19	6.12	147	5.12	149	13	4.12	151
28x 72	16.19	140	14.44	159	12.69	152	13	11.81	154	10.94	153	14	9.34	152	8.53	149	7.87	150	19	6.12	147	5.12	149	13	4.12	151
30x 72	17.34	136	15.57	138	13.39	147	10	12.69	152	11.72	159	9	10.06	151	9.10	147	8.14	146	15	7.14	146	6.14	149	13	5.14	151
24x 84	20.81	146	18.57	159	16.37	147	11	12.69	152	11.72	159	9	10.06	151	9.10	147	8.14	146	15	7.14	146	6.14	149	13	5.14	151
26x 84	17.53	140	15.63	159	13.74	151	11	12.79	153	12.11	154	12	10.94	153	10.06	151	9.10	147	15	7.14	146	6.14	149	13	5.14	151
28x 84	18.88	151	16.84	152	14.8	148	10	13.78	152	12.76	153	12	11.84	153	10.94	153	10.06	151	15	7.14	146	6.14	149	13	5.14	151
30x 84	20.23	142	18.05	144	15.86	150	10	14.77	148	13.76	150	11	12.58	151	11.72	151	10.72	150	14	10.72	150	9.72	149	13	8.72	151
24x 96	23.26	146	21.06	148	18.86	152	9	17.72	159	16.72	159	10	14.8	148	13.76	150	12.58	151	14	12.58	151	11.72	151	10	10.72	150
26x 96	24.61	146	22.41	148	20.21	157	10	18.62	146	17.62	146	11	15.54	149	14.54	149	13.54	148	13	13.54	148	12.54	147	11	11.54	148
28x 96	25.96	151	23.76	153	21.56	157	9	19.54	157	18.54	157	10	16.48	146	15.48	146	14.48	145	10	14.48	145	13.48	144	11	12.48	145
30x 96	27.31	162	25.11	155	22.91	152	8	20.48	152	19.48	152	9	17.45	150	16.45	150	15.45	144	9	15.45	144	14.45	143	10	13.45	144
24x 120	30.61	152	28.41	148	26.21	157	7	22.45	157	21.45	157	8	19.42	150	18.42	150	17.42	144	8	17.42	144	16.42	143	7	15.42	144
26x 120	32.96	152	30.76	148	28.56	157	6	24.40	157	23.40	157	7	21.38	150	20.38	150	19.38	144	6	19.38	144	18.38	143	5	16.38	144
28x 120	35.31	162	33.11	155	30.91	152	5	26.35	157	25.35	157	6	23.32	150	22.32	150	21.32	144	5	21.32	144	20.32	143	4	18.32	144
30x 120	37.66	159	35.46	144	33.26	159	4	28.30	157	27.30	157	5	25.28	150	24.28	150	23.28	144	4	23.28	144	22.28	143	3	19.28	144

Steel Only



## THE U. S. STANDARD GAUGE FOR ARMCO AMERICAN INGOT IRON SHEETS AND PLATES

No. of Gauge	Thickness in Fractions of an Inch Black	Thickness in Decimal Parts of an Inch Black	Weight per Square Foot in Oz. Black	Weight per Square Foot in Oz. Galvanized
0000000	1-2	.5	320	
000000	15-32	.46875	300	
00000	7-16	.4375	280	
0000	13-32	.40625	260	
000	3-8	.375	240	
00	11-32	.34375	220	
0	5-16	.3125	200	
1	9-32	.28125	180	
2	17-64	.265625	170	
3	1-4	.25	160	
4	10-64	.234375	150	
5	7-32	.21875	140	
6	13-64	.203125	130	
7	3-16	.1875	120	
8	11-64	.171875	110	
9	5-32	.15625	100	
10	9-64	.140625	90	92.5
11	1-8	.125	80	82.5
12	7-64	.109375	70	72.5
13	3-32	.09375	60	62.5
14	5-64	.078125	50	52.5
15	9-128	.0703125	45	47.5
16	1-16	.0625	40	42.5
17	9-160	.05625	36	38.5
18	1-20	.05	32	34.5
19	7-160	.04375	28	30.5
20	3-80	.0375	24	26.5
21	11-320	.034375	22	24.5
22	1-32	.03125	20	22.5
23	9-320	.028125	18	20.5
24	1-40	.025	16	18.5
25	7-320	.021875	14	16.5
26	3-160	.01875	12	14.5
27	11-640	.0171875	11	13.5
28	1-64	.015625	10	12.5
29	9-640	.0140625	9	11.5
30	1-80	.0125	8	10.5

### LIMITS, GAUGES AND SIZES OF ARMCO BLACK SHEETS

Gauge	Widths...	48"	44"	42"	40"	36"	32"	30"	28"	26"	24"
10	Lengths...	144	144	168	168	168	168	168	168	168	168
12	"	144	144	168	168	168	168	168	168	168	168
14	"	144	144	168	168	168	168	168	168	168	168
16	"	144	144	168	168	168	168	168	168	168	168
18	"	144	144	156	168	168	168	168	168	168	168
20	"	144	144	144	168	168	168	168	168	168	168
22	"	144	144	144	168	168	168	168	168	168	168
24	"			120	120	144	144	144	144	144	144
25	"			120	120	144	120	144	144	144	144
26	"			120	120	144	120	144	144	144	144

### LIMITS, GAUGES AND SIZES OF ARMCO GALVANIZED SHEETS

Gauge	Widths...	48"	44"	42"	40"	36"	32"	30"	28"	26"	24"
10	Lengths...	144	144	144	144	144	144	144	144	144	144
12	"	144	144	144	144	144	144	144	144	144	144
14	"	144	144	144	144	144	144	144	144	144	144
16	"	144	144	144	144	144	144	144	144	144	144
18	"	144	144	144	144	144	144	144	144	144	144
20	"	144	144	144	144	144	144	144	144	144	144
22	"	144	144	144	144	144	144	144	144	144	144
24	"			120	120	144	144	144	144	144	144
26	"			120	120	144	120	144	144	144	144
27	"			120	120	144	120	144	144	144	144
28	"				120	120	120	144	144	144	120



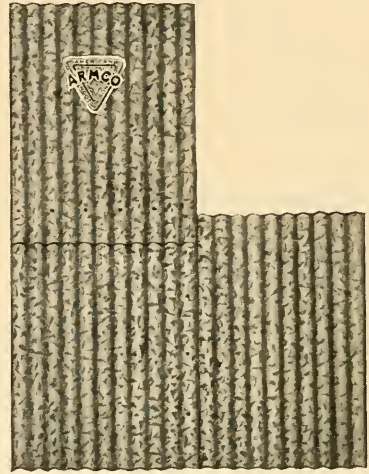
## CORRUGATED IRON ELEVATOR SIDING

Fig. 13.



Regular sized sheets 26 in. wide by 32 in. long.

Fig. 14.



Shows Method of Application.

Corrugated sheets of this size are used for grain elevators, or buildings of similar construction, which are liable to settle.

These sheets are lapped from one to two inches at the ends, and are nailed only along the lower edge, and from one to two inches (according to end laps) above the upper edge of the lower sheets. This allows them to slip one or two inches in every 32 inches (the full length of sheet) as the sides of the building settle. This prevents the buckling of the sheets and tearing around nails.

### RULES FOR ESTIMATING AMOUNT OF CORRUGATED IRON REQUIRED TO COVER GIVEN SPACES.

**For Roofing**—Stock sheets are 5, 6, 7, 8, 9 and 10 feet long. Take number of sheets of proper length to make rafter, allowing from three to six inches for end laps. For a shed roof, multiply each of the lengths required to make total length of rafter by one-half the total length of building, and to this add five per cent. This will give you the approximate number of sheets required. For a gable roof, multiply by full length of building; or, to simply find the total number of square feet required, add ten per cent to the total net measurement of all spaces to be covered.

**For Siding**—Take a number of sheets of proper length to make height of building; allow from two to three inches end laps; multiply this by one-half length of building, and to this add three per cent. Estimate each side in the same way, or add eight per cent to the net measurement of each space to be covered for the total number of square feet.





## CORRUGATED IRON APPLIED TO IRON FRAMES

WITH IRON STRIPS AND RIVETS

Shows Strap Iron Cleat used to fasten  
Corrugated Iron to Angle Iron Purlins.

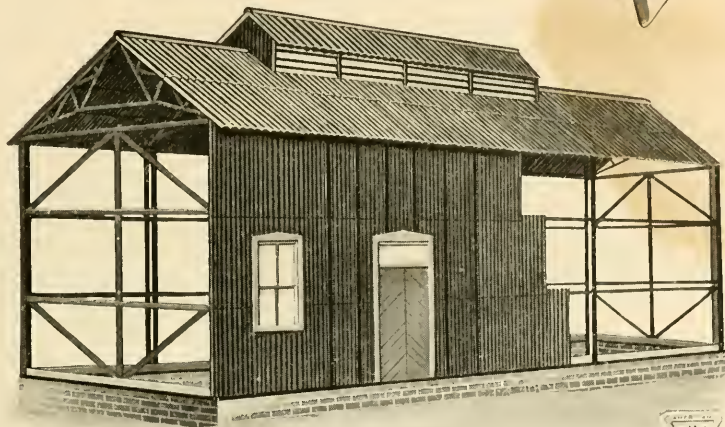


Fig. 15.—Shows Application of Corrugated Iron on Skeleton frame Building,  
made of Angle Iron or Timber.

### TO FIND LENGTH OF ANGLE OF ROOF WHEN PITCH AND BASE ARE KNOWN

NOTE:—OVERHANG MUST BE ADDED TO HYPOTHENUSE FOR FULL LENGTH OF SHEETS.

Pitch of Roof	Rise Per Foot		Pitch of Roof	Rise Per Foot	
1/48	1/4"	Base $\times$ 1.00086 = Hypotenuse	25/48	12 1/4"	Base $\times$ 1.44157 = Hypotenuse
1/24	1"	" $\times$ 1.00346 = "	13/24	13"	" $\times$ 1.47431 = "
3/48	1 1/2"	" $\times$ 1.00777 = "	27/48	13 1/2"	" $\times$ 1.50518 = "
1/12	2"	" $\times$ 1.01379 = "	7/12	14"	" $\times$ 1.53659 = "
5/48	2 1/2"	" $\times$ 1.02149 = "	3/5	14 1/2"	" $\times$ 1.56205 = "
1/8	3"	" $\times$ 1.03077 = "	29/48	14 1/2"	" $\times$ 1.56840 = "
7/48	3 1/2"	" $\times$ 1.04165 = "	5/8	15"	" $\times$ 1.60078 = "
1/6	4"	" $\times$ 1.05409 = "	31/48	15 1/2"	" $\times$ 1.63352 = "
3/16	4 1/2"	" $\times$ 1.06800 = "	2/3	16"	" $\times$ 1.66666 = "
1/5	4 3/4"	" $\times$ 1.07703 = "	11/16	16 1/2"	" $\times$ 1.70018 = "
5/24	5"	" $\times$ 1.08333 = "	17/24	17"	" $\times$ 1.73405 = "
11/48	5 1/2"	" $\times$ 1.10003 = "	35/48	17 1/2"	" $\times$ 1.76825 = "
1/4	6"	" $\times$ 1.11803 = "	3/4	18"	" $\times$ 1.80277 = "
13/48	6 1/2"	" $\times$ 1.13728 = "	37/48	18 1/2"	" $\times$ 1.83759 = "
7/24	7"	" $\times$ 1.15770 = "	19/24	19"	" $\times$ 1.87268 = "
5/16	7 1/2"	" $\times$ 1.17758 = "	4/5	19 1/2"	" $\times$ 1.88679 = "
1/3	8"	" $\times$ 1.20185 = "	39/48	19 1/2"	" $\times$ 1.90804 = "
17/48	8 1/2"	" $\times$ 1.22545 = "	5/6	20"	" $\times$ 1.94365 = "
3/8	9"	" $\times$ 1.25000 = "	41/48	20 1/2"	" $\times$ 1.97949 = "
19/48	9 1/2"	" $\times$ 1.27543 = "	7/8	21"	" $\times$ 2.01556 = "
2/5	9 3/5"	" $\times$ 1.28064 = "	43/48	21 1/2"	" $\times$ 2.05184 = "
5/12	10"	" $\times$ 1.30170 = "	11/12	22"	" $\times$ 2.08832 = "
7/16	10 1/2"	" $\times$ 1.32876 = "	15/16	22 1/2"	" $\times$ 2.12500 = "
11/24	11"	" $\times$ 1.35656 = "	23/24	23"	" $\times$ 2.16185 = "
23/48	11 1/2"	" $\times$ 1.38506 = "	47/48	23 1/2"	" $\times$ 2.19887 = "
1/2	12"	" $\times$ 1.41421 = "	1	24"	" $\times$ 2.23606 = "

#### EXAMPLE.

Find Length of Angle of Roof to be Covered—Same Having  $\frac{1}{3}$  Pitch.  
36 Foot Base and 2 Foot Overhang.

1.20185 Given in Table for  $\frac{1}{3}$  Pitch  
36' Base

721110

360555

43.26660' Hypotenuse

43.26660' = 43'-3  $\frac{3}{8}$ " Approximately.

43'-3  $\frac{3}{8}$ " + 2' Overhang = 45'-3  $\frac{3}{8}$ "

End Laps must be Added to this Length.

THE AMERICAN ROLLING MILL CO.,  
Middletown, Ohio.

Allow Corrugated Roofing at least 3-inch pitch to the foot, and more if possible.

## CORRUGATED IRON, SUPPLIED WITH PRESSED STANDING SEAM EDGES

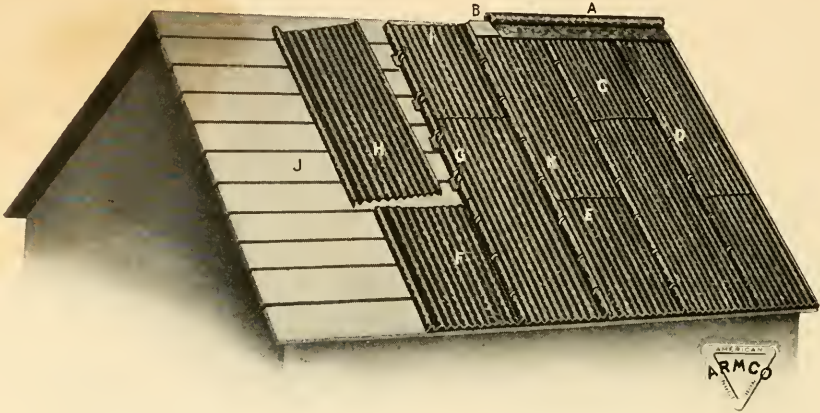


Fig. 16.—Shows Pressed Standing Seam Corrugated Roofing laid.

A—Combing Cap. B—Wood Filler. C—Roof Finished. D—Standing Seam, finished. E—Cross-Joint nailed. F—Sheet in place, cleat turned, and seam squeezed. G—Cleats in place at side of sheets. H—Sheet ready to put in place to finish course. J—Sheathing Strips.



Fig. 17.—Shows mode of finishing Standing Seam when laid as Roofing.

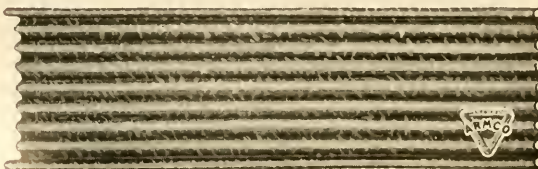


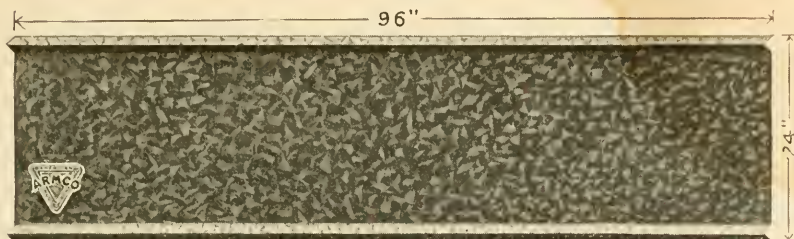
Fig. 18.—Shows Corrugated Iron supplied with Standing Seam.



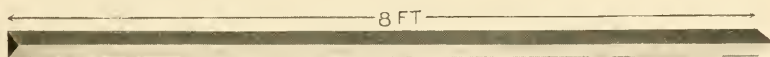
## V-CRIMP ROOFING

MADE OF EITHER PAINTED OR GALVANIZED IRON

Fig. 19.



Shows style of regular V-Crimp Roofing as shipped.



Shows V Stick used with V-Crimp Roofing.

Regular stock sheets are 24 inches wide, and can be furnished in 5, 6, 7, 8, 9, and 10 foot lengths.

V-Crimp Roofing is the oldest style of iron roofing, and has been used more extensively than any other kind. There is still as large a demand for it as for patent Standing-Seam Roofing (which has a much better mechanical construction), on account of its simplicity and cheapness. Any one can apply this roofing, as the tools required are simply a hammer, a pair of snips, and a jointer to turn end locks. It can be applied direct to close sheathing, or to strips placed four or five inches apart, or over old shingles, as we use Standing-Seam Roofing. When put on over shingles we furnish 3-inch nails, so that they will reach the sheathing and hold firmly, but when applied direct to sheathing,  $1\frac{3}{4}$ -inch nails are furnished. We manufacture this style of the best pure iron roofing sheets.

Do not lap the ends of V-Crimp Sheets, but lock them together as in Standing Seam.

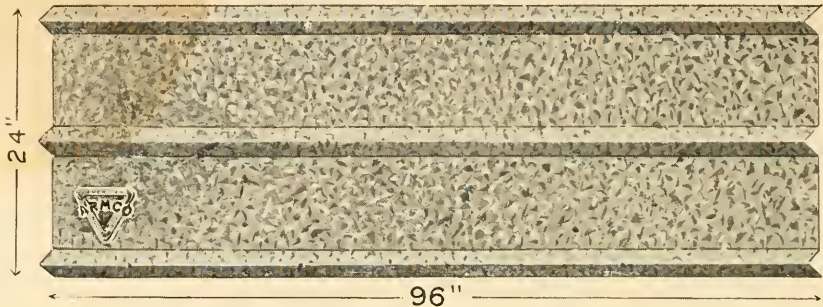
We can furnish 22, 24 and 26 Gauge, Painted or Galvanized, in lengths and widths of regular stock sheets, also in 12 foot lengths, at the usual additional charge of ten cents per square.



## THREE-CRIMP ROOFING

MADE OF EITHER PAINTED OR GALVANIZED IRON

Fig. 20.



Shows V-Crimp Roofing with Three Crimps, or Center Crimp.  
This style is never shipped unless specially ordered.

Regular stock sheets are 25 inches wide, and can be furnished in 5, 6, 7, 8, 9, and 10 foot lengths. Gauges 28 to 22 in galvanized, 26 to 20 in painted.

V-Crimp Roofing, with Center Crimp, makes a very stiff sheet, and is preferred by some, as it breaks the flat appearance of the sheets.

We recommend its use where rafters are not over 10 feet, and no end laps are required, as it is not advisable to simply lap the ends of the sheets, and it is difficult to make two small end joints on every sheet. We do not furnish sticks for center crimp unless specially ordered.

Fig. 21.



Above Cut shows where to Nail V-Crimp Roofing.

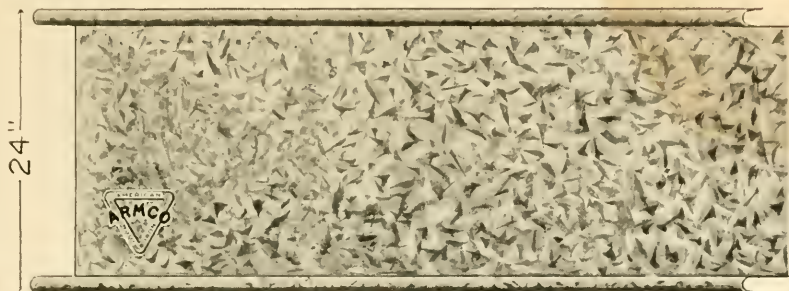
We can furnish Roofing Sheets in 12 foot lengths in gauges listed above at an additional cost of 10 cents per square.



## PRESSED STANDING SEAM ROOFING

MADE OF EITHER PAINTED OR GALVANIZED IRON

Fig. 22.



Shows sheet of Standing Seam Roofing.

Fig. 23.



Shows Straight Cleat as shipped ready to apply.

Our Standing Seam Roofing, shown above, has all the qualities necessary to make a perfect roof. It is so constructed as to make a perfect water-tight joint. It can be cheaply and easily applied, and can be fitted around angles, valleys, and openings without unnecessary waste. The nails are not driven through the roofing sheets, but through the cleats underneath the sheets. It is very strong, and can not be blown off, and its construction provides for expansion and contraction.

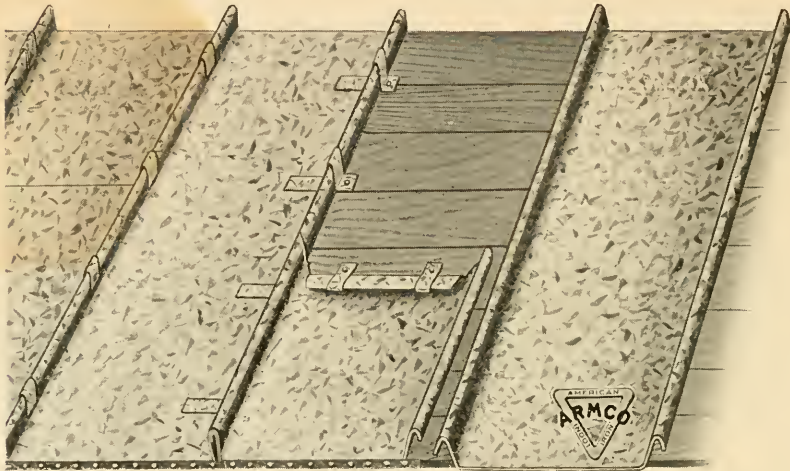
Regular stock sheets of No. 28 and 26 gauge are 24 inches wide, and from 5 to 10 feet in length. 24 and 22 gauge are supplied 25½" wide, 12 foot lengths at 10 cents per square additional.

This style of roofing can be taken off and reapplied, with simply the loss of the cleats. If this is to be done, write for suggestions.

We recommend it on buildings having two inches or more pitch to the foot.

## PRESSED STANDING SEAM ROOFING SELF-CAPPING

Fig. 24.



### DIRECTIONS FOR LAYING PRESSED STANDING SEAM ARMCO IRON ROOFING

Snip and turn the end locks with the Jointer and bend upper end of the sheet up and the lower end down. Commence at the lower right hand corner, hold the sheet so the widest standing seam or lip is at the right hand side, flatten out the wide standing seam, bend it over and nail to the edge of sheathing, or if Fire Wall, turn the sheet up 4 to 6 inches nail securely and counter flash.

Straighten the lower end lock so as to allow same to be nailed to edge of sheathing, this represents the starting sheet, applied.

Now apply cleats to the sheathing, 2 at the upper lock end and one every 12 or 14 inches on the side seam, then continue your course up to the comb of the roof, allowing the sheets to project one inch over the comb of the roof on one side and two inches on the other.

Straighten up, fold the higher over the lower and form seam with squeezing tongs. Or if Ridge Roll is to be applied, it will not be necessary to fold over end, making a Standing Seam.

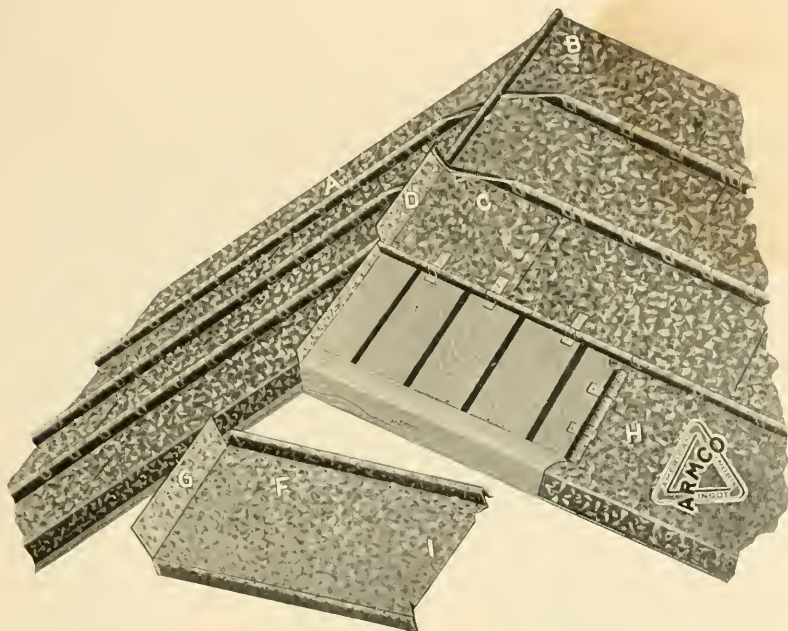
Start the second course with the piece, if any, left over from the first course, allowing the flange to over lap first course Standing Seam. Press it down and turn the ends of the cleats over, then press seam together with the tongs.

It is best to start second course with a different length sheet than the first in order to break joints. This is the rule when end locking the sheets.

Some simply end lap this roofing and run cross joints parallel with each other, but this is not good practice.

## PRESSED STANDING SEAM IRON ROOFING

Fig. 25.



Shows how to lay Standing Seam Roofing on a Gable Roof, using our Straight Cleats.

Figure 25 explains the method of laying Standing Seam Roofing on a gable roof, and the manner of forming the comb without the use of a special combing cap; also, method of fastening edges at sides of roof.

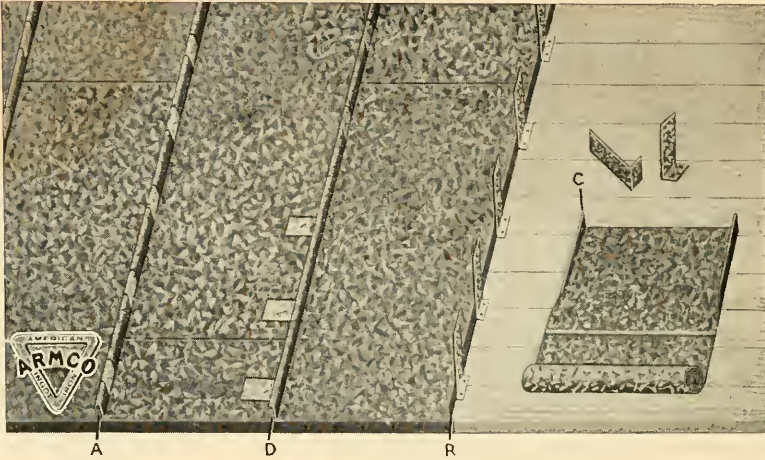
A shows side of roof completed. B—Ridge or comb as it appears when completed. C—Standing seam hammered down to form into comb. D—Extreme end of sheet, having two inches turned up to form comb. E—Upper end of sheet on opposite side turned up one inch; over this is folded one inch of the sheet on the opposite side, as in D. The folding of the end of sheet over the opposite one forms a solid ridge cap from the roofing sheets, and only requires a little careful and patient work to accomplish it. F shows sheet formed ready to place in position on roof. H—End cleats in position at end joint of lower sheet. I—End joint formed on lower end of sheet ready to hook into upper joint of sheet H.

Combing Cap is not a necessary trimming, and is not included in prices quoted.



## ROLL AND CAP IRON ROOFING

Fig. 26.



Shows how Roll and Cap Roofing is Applied.

Figure 26 explains the method of laying Roll and Cap Roofing on a shed roof. Cut rolls into strips to suit length of rafters, allowing one inch both at cave and comb to fasten.

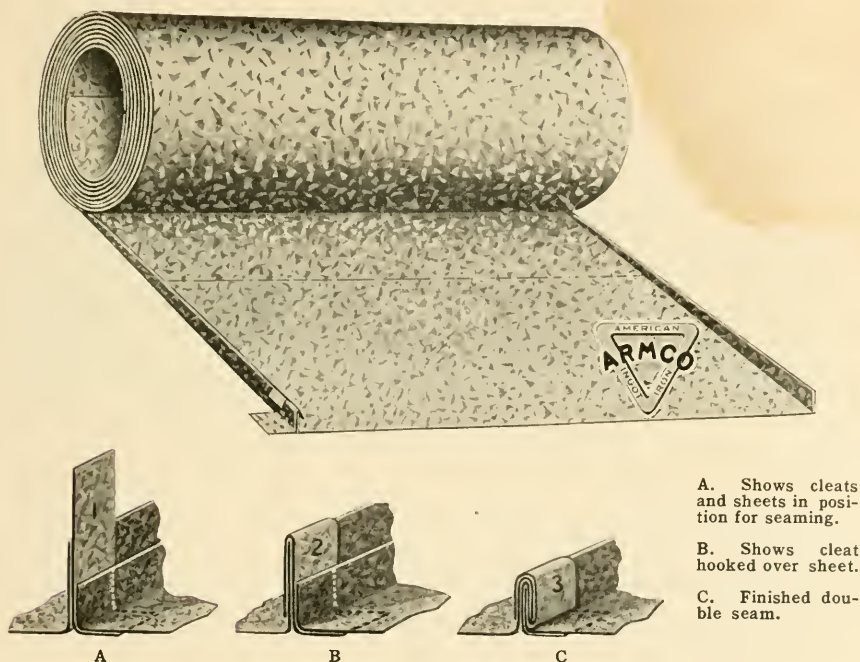
A shows finished seam. B shows edge of sheets turned up to form seam, with cleats placed in position and nailed to sheathing. C shows sheet with edges turned up and ready to place against sheet B. D shows manner of fastening sheets at cave. After sheet C is placed against sheet B, the cap is dropped over single edge of each, then the long end of cleat is turned over cap, and all are squeezed up together with tongs.



## 4-X GRADE DOUBLE CROSS-LOCK ROLL ROOFING

MADE OF EITHER PAINTED OR GALVANIZED IRON

Fig. 27.



This style of roofing is especially adapted to roofs having less than two inches pitch to the foot, and is used successfully where only one inch fall is given.

Each roll as shipped contains 50 lineal feet, 2 feet wide after the sheets are seamed together. These rolls are made up of 5 resquared sheets 26 $\frac{1}{2}$ " wide, 122 inches long, swedged together, being locked by a power swedger that makes a very close and neat joint.

Our method of laying is very simple, and makes a perfect roof when completed. We do not rivet or countersink our caps, but allow for expansion and contraction in our metal cleat fastening.

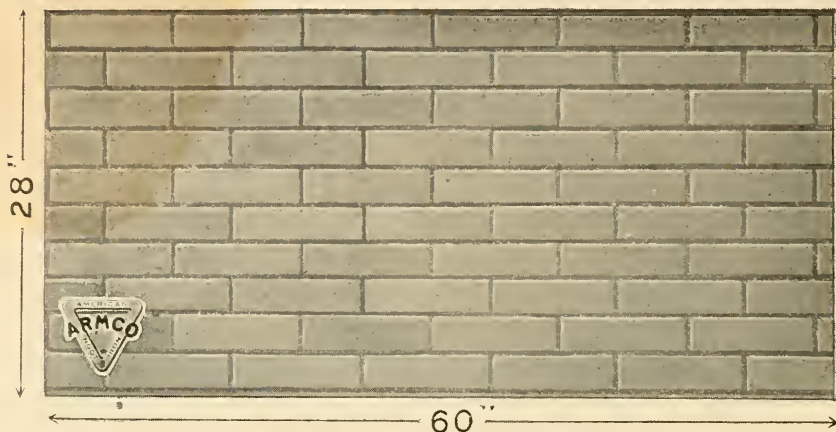
This is a very desirable roofing where buildings have the roof pitch one way only, with a slight fall and long courses.

We can furnish Roll Roofing with either single or double cross lock. Gauges 28 and 26 in galvanized or 26 in painted.

**Never Give a Roof Less than One Inch Fall to the Foot.**

## PLAIN PRESSED BRICK SIDING

Fig. 28.



Shows sheet of Iron Brick Siding as shipped. Sheets 28 inches wide by 60 inches long.

Standard sheets measure 28 x 60 inches. In all cases care should be taken to break side joints. This will give greater strength to the structure and allow material to fit more perfectly. Gauges 28 and 26.

### DIRECTIONS FOR APPLYING

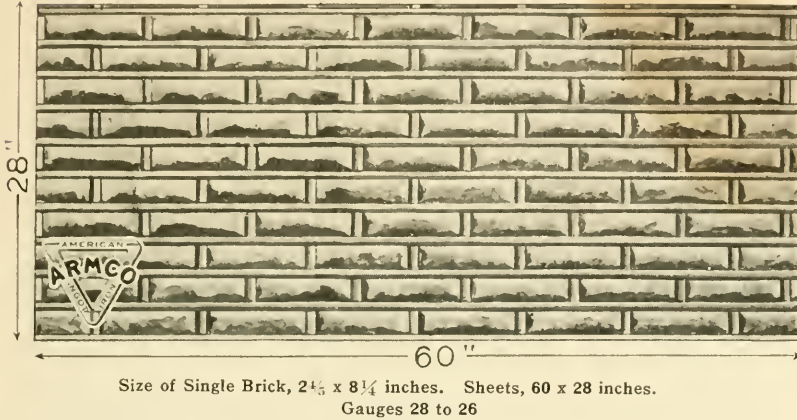
Commence about eight inches from right-hand corner, always applying first sheet at bottom of right-hand corner, and lay from right to left on all four sides, if they are to be covered. In starting first course, if the frame work rests on the ground, put a wood strip all around the foot three inches wide. After first course is laid, if a piece is left, use this to start the next course; always have the nailing flanges at top of sheet and end of sheet last laid, so that the next sheet will lap over flange at top and side, and fit into grooves and form perfect joints. We advise driving one nail in every third brick groove, forming a square. This forms the sheet close to sheathing, and keeps same from buckling.

Always lay the concave or hollowed part of mortar line on the outside.

Shipped two squares to the bundle, or five squares to the crate.

## ROCK-FACE BRICK

Fig. 29.



## ROCK-FACE BRICK SIDING

MADE OF PAINTED OR GALVANIZED ARMCO IRON SHEETS  
ARTISTIC! DURABLE! CHEAP!

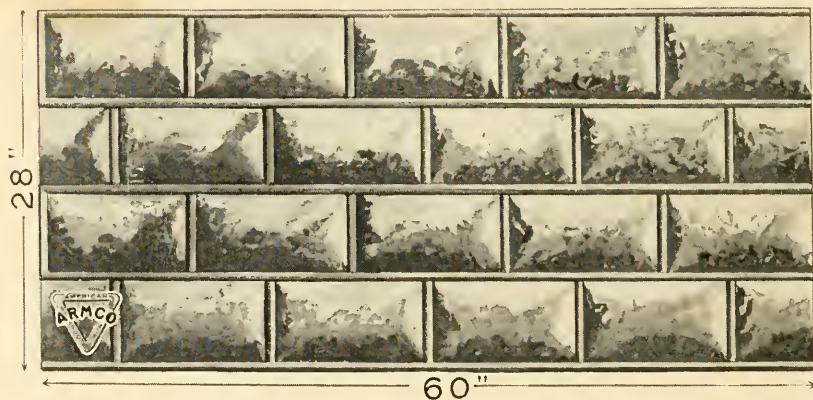
Imitates Rock-Face Brick to perfection. It compares favorably with finished Rock-Face Brick, making the most attractive and handsome sheet-metal covering yet produced or offered the building trade.

It makes an elegant facing for store fronts and garages, and will certainly take the place of the old galvanized iron fronts. It produces a handsomer front, and is easily applied.

Architects, Builders, and Contractors will readily see the advantage of using these patterns for side coverings on all buildings in preference to the old style corrugated, beaded, and other metal sidings. Used extensively for side covering on business blocks, dwellings, school houses, court houses, auditoriums, opera houses, factories, etc.

## ROCK-FACE STONE

Fig. 30.



No. 1.—Size of Single Stone, 7 x 12 inches. Sheets, 60 x 28 inches.  
Gauges 28 and 26. Galvanized.

Stone Siding should be applied over solid sheathing.

A Square of Rock-Face Brick or Stone consists of 8 4-7 sheets, 60 inches long by 28 inches wide, painted both sides or galvanized.

In ordering Plain or Rock-Face Siding, allow 4 to 6 square feet to the 100 for laps.





IRON PILASTER, All Complete with 4-inch Return  
28" Height

CORNER.



Fig. 33.

Shows Rock-Face Brick  
Corner Finish, 4 inch to  
the weather on each face.  
28" Height

CORNER.



Fig. 34

Shows Plain Brick Corner  
Finish, 4 inches to the  
weather on each face.  
28" Height

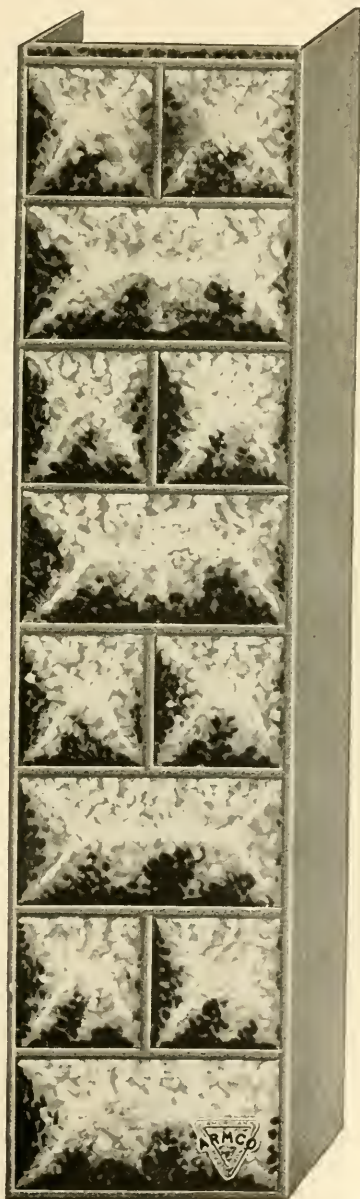
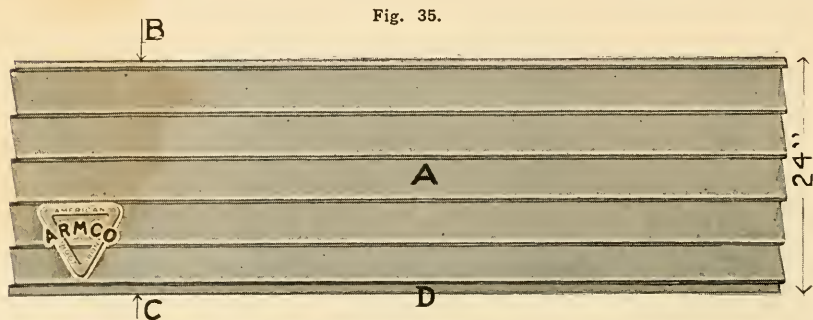


Fig. 32.

Gauges 28 to 26.

## WEATHERBOARD SIDING



Shows the full sheet of Metal Clapboarding as shipped.

A—Sheet ready to apply on sides of building to studding or rough boarding, where nails are to be driven at every studding. B—Upper flange joint. C—Lower flange that fits over and under flange of upper sheet. D—Where nails are to be driven after two sheets are jointed; follow up with nailing at each panel and studding; if laid on sheathing, nail under flange every two feet; this fastens each sheet securely to studding or sheathing. At openings or endings, cut off any surplus, using care not to bend nor tear the panel at offset or base, and apply this piece in commencing the next course.

This siding makes a perfect imitation of wooden weatherboards. It is cheaper than wood, and its fire-proof quality gives it a decided superiority. Gauges 28 to 26. Stock lengths 8 and 10 feet.

When no length is specified we ship 8 foot sheets.

In applying weatherboarding, lap the sides of sheets as indicated in cut, and ends from one to two inches; also put a few nails through the body of the sheet at different places, so as to hold it firmly to the sheathing, and always drive them close under the flange.

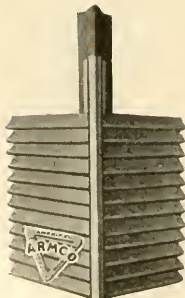


Fig. 36.

Shows Clapboards laid on each side of Corner Boards.



Fig. 37.

Shows sectional view of Clapboard with Lap Joint and Nail partly driven. This Lap forms hook joint, and if the nails are driven secure with the nail set, the joint will be thoroughly water-tight.

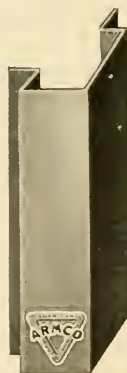


Fig. 38.

Shows section of Corner Board. Used with Weatherboard Siding.



## BEADED SIDING AND CEILING

Fig. 39.



Gauges, 28 to 26

Regular stock sheets are 24 inches wide by eight to ten feet long.

Beaded sheets are used for both Siding and Ceiling, and make a very fine appearance, however used.

Each sheet has 9 beads, 3 inches apart, and covers 24 inches when lapped in outer bead.

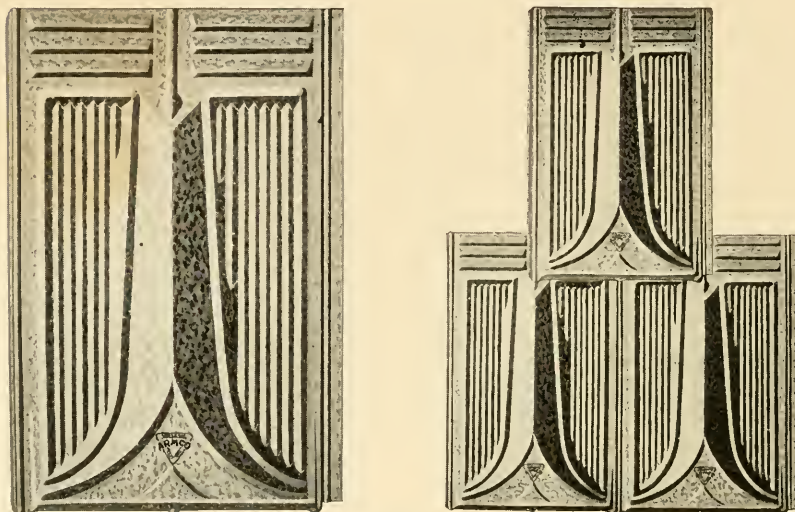
No special tools are required to apply the material.

Sheets can be applied direct to ceiling joists, but make a much better job when close sheathing is used and can be laid much faster.

When no length is specified we always ship 8-foot sheets.

## ARMCO IRON SHINGLES

Painted or Galvanized



Terne Plate Shingle, ARMCO Iron Base Galvanized after Forming

Combine Quality of Material, Simplicity of Design, Beauty of Appearance, all of which appeal to the discriminating builder and architect. In applying ARMCO Shingles, all nailing is done through the flange on the right side of the shingle, each having three nail holes punched for seven-eighths inch nails.

Ribs are formed at the top of shingle to prevent rain or snow from entering. The side lock is simple and, while allowing for expansion and contraction, cannot become unhooked after being nailed in position.

The shingle covers  $8\frac{1}{2}$  in. x 12 in. 142 shingles cover 100 square feet, or one square.

Shipped one square in a box.

Beware of imitations. Each shingle stamped ARMCO. None genuine without this trade-mark.

We furnish special shingle trimmings, standard sizes, made from 28 gauge Galvanized American Ingot Iron, to match shingles, such as plain and special ridge and hip moulding, shingle valley, porch flashing, etc.





## **WHY YOU SHOULD BUY ARMCO SHINGLES**

The era of iron construction is just at its beginning. The possibilities of sheet metals have never yet been realized. Metal shingles are an ideal material for most classes of buildings, and they offer so many advantages that the careful builder and owner of buildings cannot afford to overlook them. We suggest a few of their leading features:

**Good Protection and Long Life**—These are the first and essential requirements of a roofing. Iron sheets have given such abundant proof of their ability to render good and lasting service that it is entirely unnecessary to dwell at length upon these particular points of merit. Instances are numerous where iron roofs have given from thirty to forty years of good protection, and have given value received many times over. One thing is important. Start your roof right by using a product of known value and worth. Satisfactory results are then sure to follow.

**Fire and Lightning Proof**—These are features of decided value to all owners of buildings, especially in rural districts or communities removed from fire protection. No material can equal metal sheets for such purposes. We know of no instance where serious damage has resulted from lightning where buildings have been covered by iron roofs.

The danger from sparks and falling embers is greatly lessened or eliminated by the use of iron roofings and sidings. Their use is strongly advocated by underwriters, and buildings so covered will always secure the lowest rate of insurance.

**Clean and Sanitary**—This is an important feature where water from roofs is run into cisterns. Iron roofs have a smooth surface, and the wind keeps them clean and free from dirt, leaving nothing to wash into the cistern. Users of cistern water from iron roofs are pleased to find how much cleaner the water is than that from wooden shingle, gravel or composition roofs which are retentive of dirt and foreign matter.

**Ease of Application**—These shingles are easy to apply and do not necessarily require the employment of experienced labor. Hammer and snips are the tools used.

**Reasonable Cost**—Considering the life of iron roofings they are cheaper in the final cost than wood shingles.

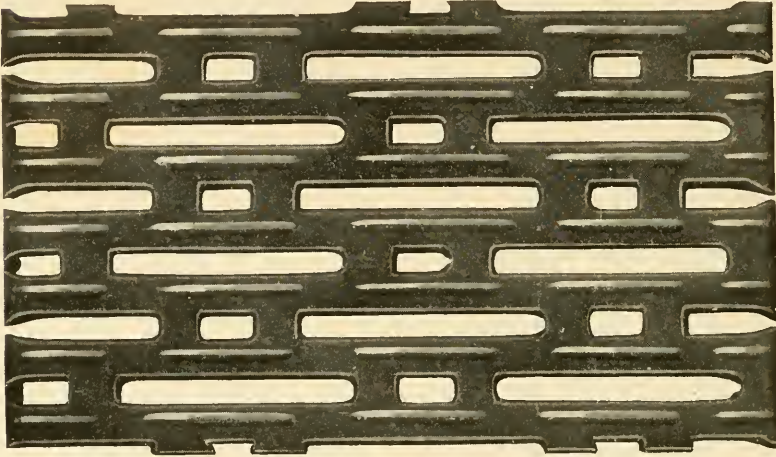
**Other Advantages**—In addition to the foregoing, these products possess many other desirable features, in that they do not crack, warp, split, blow off, clog gutters, nor develop any of the expensive and annoying traits common to many other roofings. We believe that metal shingles are the most practical and satisfactory roofing material that can be obtained for all classes of buildings to which they are applicable.

**Armco American Ingot Iron** — Has for years been noted as the most remarkable rust-resisting and durable sheet metal known to the trade; we feel justified in recommending **ARMCO Shingles** to every buyer interested in a **Quality** product. Write for ARMCO samples and prices.



"A R M C O" B R A N D

## KÜHNE'S CLINCHER LATH



A **Lath** that is distinctly a ceiling and partition lath. The straight, even plastering surface is considered by all plasterers to be 100 per cent better to apply the first coat of plaster on, than even the old-fashioned wood lath.

A **Lath** that will require less plaster than any other on the market.

A **Lath** having a key with no sharp edges to cut the green plaster and cause it to drop off. The metal in the pores of the lath being bent back to an angle of about 90 degrees, forming a shelving support.

A **Lath** that on account of its rigidity, will not belly and sag between the studs making it easier to erect and plaster. It also insures a uniform thickness of mortar, producing a considerable saving to the contractor.

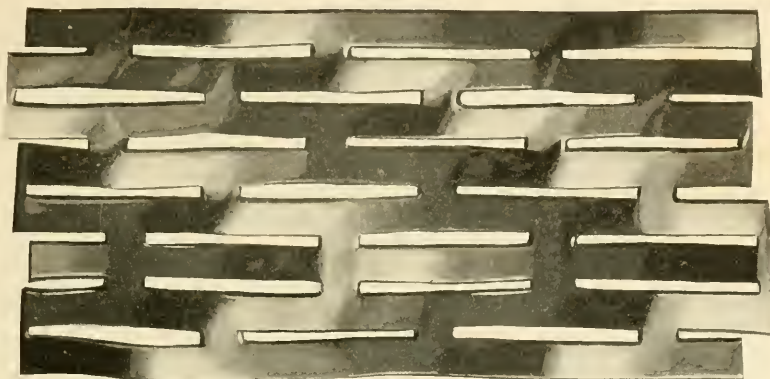
A **Lath** that appeals to the professional architect, the practical lather and the economical builder. Heavily coated with asphaltum, or galvanized.

Furnished in sheets  $13\frac{1}{2}$  inches by 96 inches only. 10 sheets per bundle. 10 square yards per bundle made in 28 gauge.

Weight  $1\frac{1}{2}$  pounds per square yard.

Large stock carried and prompt shipments assured.

## KÜHNE'S TRUSS METAL REINFORCING



### KÜHNE'S TRUSS METAL REINFORCING

**Best,** because it does away with studding, saving space and money.

**Best,** because of the even distribution of metal through partition or siding.

**Best,** because uneven distribution of metal in wall or partition means uneven expansion, causing temperature cracks between studding or additional stiffening reinforcement.

**Best,** because it can be cut to any size with ordinary snips. No patented cutters or other attachments required to erect it.

**Best,** because it is made of Armco American Ingot Iron, the purest and most rust-resisting Iron ever manufactured.

Galvanized or asphaltum-coated.

**Table of Sizes of Truss Metal Reinforcing Sheets**

Length	Width	Sq. Ft. per Sheet
68 inches	28 inches	13.22
79 "	28 "	15.36
90 "	28 "	17.50
101 "	28 "	19.63
112 "	28 "	21.77

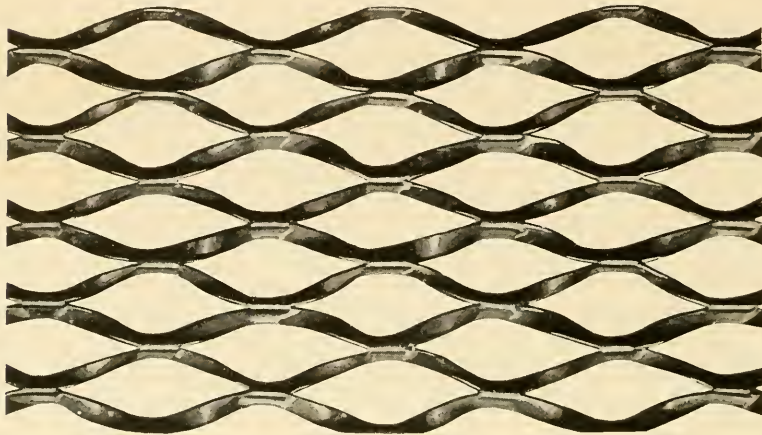
Stock sizes, 28 inches by 90 inches, shipped in crates containing 350 square feet.

No. 26 gauge has a cross section of 0.216 square inches per foot of width, weight 80 pounds per 100 square feet.

No. 28 gauge has a cross section of 0.18 square inches per foot of width, weight 67 pounds per 100 square feet.



## IMPERIAL EXPANDED METAL LATH



## SPIRAL EXPANDED METAL LATH

The Expanded Metal Lath, whose metal strands are  $\frac{1}{8}$  of an inch in width. A requirement in all government specifications.

The Expanded Metal Lath with a spiral twist in its strands which makes cup formations throughout the sheet, thereby keeping the plaster from stripping. No sharp edges presented to green plaster. A perfect plaster binder.

The Expanded Metal Lath that is manufactured from Armco American Ingot Iron. A wise man would allow no other to be used in his building, particularly for stucco work.

It will greatly outlast ordinary Steel, when used in connection with patent plasters which greatly accelerate corrosion.

The Expanded Metal Lath that when made of Steel will compete in price and quality with any other on the market.

Write us your requirements in either Armco (American Ingot) Iron or Steel, galvanized or asphaltum coated. Large stock carried. Prompt shipment of all orders.

Size of sheets  $16\frac{1}{4}$  inches by 96 inches.

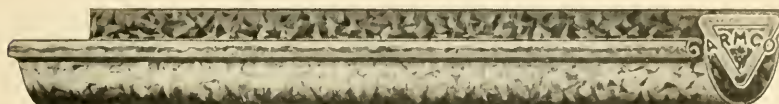
Gauge 26—Sheets per bundle 10. Yards per bundle 12. Weight per square yard in pounds  $3\frac{1}{2}$ .

Gauge 24—Sheets per bundle 10. Yards per bundle 12. Weight per square yard in pounds 4.



## LAP JOINT EAVES TROUGH

A PERFECT AND UNIFORM EAVES TROUGH



Made in ten (10) foot lengths of Galvanized Armco Iron. Gauges 28 to 24.  
Made also in eight (8) feet lengths of 14 or 16 ounce Copper.

### SIZES

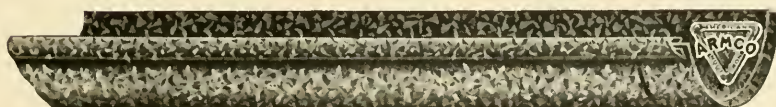
3 inch	4 inch	5 inch	7 inch	9 inch
3½ inch	4½ inch	6 inch	8 inch	10 inch

3-inch to 6-inch inclusive, ½-inch bead.

7-inch to 10-inch, ⅝-inch bead.

Packed in cases of 250 feet.

## SLIP JOINT EAVES TROUGH



**MADE OF GALVANIZED ARMCO AMERICAN INGOT IRON**

Gauges 28 and 26.

Made in 10 feet lengths, sections without seams, right hand and left hand

The slip joints are guaranteed to go together easily, and this style is a very convenient one to hang.

Sizes are taken inside of bead.

### SIZES IN TEN FOOT LENGTHS

3 inch	4 inch	5 inch	7 inch	9 inch
3½ inch	4½ inch	6 inch	8 inch	10 inch

Copper Trough made in 8 feet lengths only.

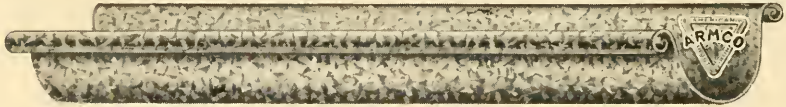
3-inch to 6-inch inclusive, ½-inch bead. 7-inch to 10-inch, ⅝-inch bead.

A crate of Trough contains 25 full length pieces, half right and half left unless otherwise ordered.

Always state whether right or left is wanted, otherwise half right and half left will be shipped.

## DOUBLE BEAD EAVES TROUGH

EITHER LAP OR SLIP JOINT



### SIZES

28, 26, 24 Gauge in Lap Joint and 28 and 26 in Slip Joint.

3 inch	4 inch	5 inch	7 inch	9 inch
3½ inch	4½ inch	6 inch	8 inch	10 inch

3-inch to 6-inch, ½-inch beads. 7-inch to 10-inch, ⅝-inch beads.

Double Bead Trough, with either Lap or Slip Joint, is always RIGHT and LEFT within itself.

A crate of this Trough consists of 25 full length pieces.

Copper Trough quoted on application.

## OCTAGON CONDUCTOR PIPE



This is a new style of Conductor Pipe manufactured exclusively by us from Armco American Ingot Iron. Gauges 28 to 24.

The Sharp Concave Corrugation makes a very handsome effect—handsomer than the round Corrugated Pipe. Contraction and expansion are also well provided for in this pipe.

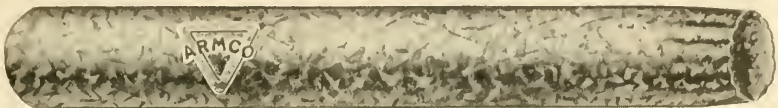
### SIZES

2 inch	Octagon Pipe
3 inch	Octagon Pipe
4 inch	Octagon Pipe
5 inch	Octagon Pipe
6 inch	Octagon Pipe

We can furnish Elbows and Shoes to fit this Pipe perfectly.

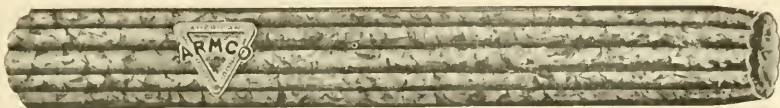
GALVANIZED CONDUCTOR PIPE

Gauges 28 to 24



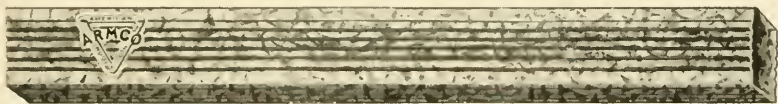
Plain Round Conductor Pipe.

IN THE FOLLOWING SIZES:  
2", 2½", 3", 3½", 4", 5", 6".



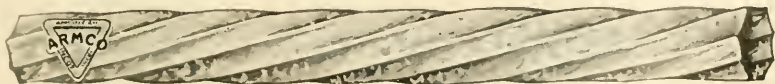
Round Corrugated Conductor Pipe.

IN THE FOLLOWING SIZES:  
2", 3", 4", 5", 6".



Square Corrugated Conductor Pipe.

IN THE FOLLOWING SIZES:	
What is commonly known as	Actual Dimensions
2 inch.....	1¾" x 2¼"
3 inch.....	2¾" x 3¼"
4 inch.....	2¾" x 4¼"
5 inch.....	3¾" x 5"



(Patented. Made only in Armco Iron and Copper).

Polygon Conductor Pipe.

IN THE FOLLOWING SIZES:  
2", 3", 4", 5", 6".  
The 2" size not made heavier than 26 Gauge.  
We Manufacture a Complete Line of These Goods.

## CORRUGATED ELBOWS AND SHOES

GALVANIZED AFTER FORMATION

Gauges 28 to 24

No. 1—45 degrees



No. 2—60 degrees



No. 3—75 degrees



No. 4—90 degrees



Shoe—75 degrees



The above cuts represent 4 inch Elbows and Shoe, and show the exact number of crimps in each NUMBER of that size.

## PLAIN ROUND ELBOWS AND SHOES

No. 1—45 degrees



No. 2—60 degrees



No. 3—75 degrees



No. 4—90 degrees



Shoe—75 degrees



The above cuts show exact number of crimps in 3 inch Elbows.  
Order Elbows and Shoes by Size and Number.





## FLAT CRIMP OCTAGON ELBOWS



ELBOW



SHOE

Made in four Angles.

These elbows are made to match and fit Octagon Pipe perfectly, and are sold at same price as ordinary, plain round or corrugated elbows.

## ELBOWS AND SHOES

Gauges 28 to 24

GALVANIZED, CORRUGATED OR PLAIN ROUND

SIZES

- 2 inch, Corrugated or Plain Round
- 3 inch, Corrugated or Plain Round
- 4 inch, Corrugated or Plain Round
- 5 inch, Corrugated or Plain Round
- 6 inch, Corrugated or Plain Round

## SQUARE CORRUGATED ELBOWS

No. 3—75 degrees

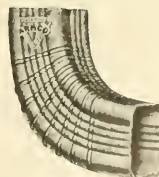


Style A, or Ordinary Curve.

SIZES

- 2 inch,
- 3 inch,
- 4 inch,
- 5 inch,
- 6 inch,

No. 3—75 degrees



Style B, or Side Curve.

By proper combination of Styles A and B, a square pipe can be made to turn the corner of a building as easily as a round pipe.

## COPPER ELBOWS AND SHOES

SIZES

- 2 inch
- 3 inch
- 4 inch
- 5 inch
- 6 inch

Copper Elbows can be furnished in either 14 or 16 ounce stock.

Order Elbows and Shoes by Size and Number.

FOR DURABILITY AND ARTISTIC EFFECT  
**ARMCO BRAND POLYGON CONDUCTOR PIPE**

HAS NO EQUAL

See Illustration on page 37.

Sizes—10 foot lengths Galvanized Armco American Ingot Iron. In 2, 3, 4, 5 and 6 inches, 28, 26 and 24 gauge. The 2 inch size cannot be supplied in heavier than 26 gauge.

Sizes—8 foot lengths, Cold Rolled Copper. In 2, 3, 4, 5 and 6 inches, 14 and 16 ounce.

Its handsome design combines many distinct advantages over all other kinds.

The concave corrugated twisted form produces great strength and resistance and therefore prevents denting or disfiguring; it also checks the sudden fall of ice, thus protecting joints and seams.

Expansion and contraction are amply provided for in its construction, consequently the pipe will not burst.

It is made of full weight Galvanized Armco American Ingot Iron rust resisting sheets in 10 foot lengths, and 8 foot lengths in Copper without a crossseam, and costs but a trifle more than common pipe.

To avoid ever recurring repairs to your conductor pipes, use Polygon. It is **Simple, Durable, Strong and Handsome**, and will outlast other makes.

**POLYGON ELBOWS AND SHOES**



These Elbows fit and match Polygon Pipe perfectly.

Sizes—2, 3, 4, 5 and 6 inches. In Galvanized Armco Iron and 14 and 16 ounce copper elbows and shoes.

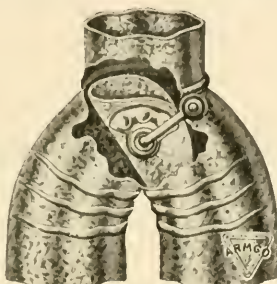
**ORNAMENTAL ELBOWS AND RECEIVERS** when used in connection with Polygon Pipe, greatly enhance the architectural beauty of houses.

## RAIN WATER CUT-OFFS

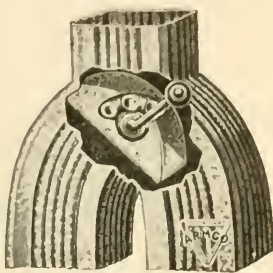
CAN BE USED IN ANY POSITION WITHOUT EXTRA PIPE



Plain Round



Corrugated Round



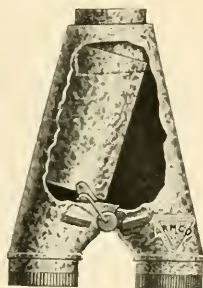
Corrugated Square

Made of Galvanized Iron, and put up in crates of one dozen each (assorted right and left hand wires) so they may be used in any position without extra pipe or elbows.

SIZES—2", 3", 4", 5" and 6".

3 and 4 inch Cut-offs are packed in crates of 1 dozen each.

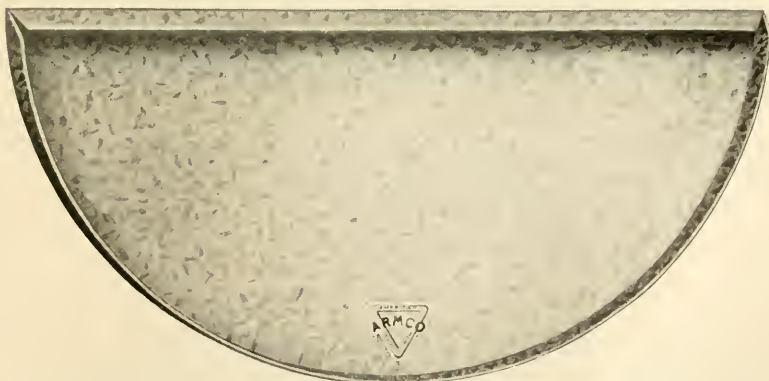
5 and 6 inch Cut-offs are packed in crates of 1/2 dozen each.



## FLANGED GALVANIZED GUTTER HEADS

FOR GUTTER ENDS, SLIP ENDS, ETC.

Perfectly formed and ready for use.



A great convenience for manufacturers of Eaves Trough, jobbers and for tanners.

SIZES

3 1/2 inch Galvanized Heads

4 inch Galvanized Heads

4 1/2 inch Galvanized Heads

5 inch Galvanized Heads

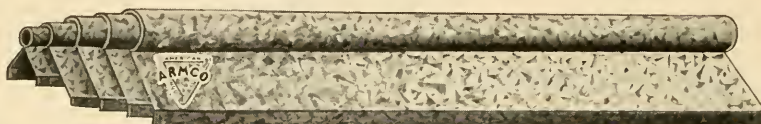
6 inch Galvanized Heads

Packed in boxes containing 250 or 500 each.

## GALVANIZED IRON RIDGE ROLL

### PLAIN RIDGE ROLL

Gauges 28 to 20



Roll	SIZES Girt	Width of Apron
1 $\frac{1}{4}$ inch	7 inch	2 inch
1 $\frac{1}{2}$ inch	8 inch	2 $\frac{1}{4}$ inch
2 inch	10 inch	2 $\frac{5}{8}$ inch
2 $\frac{1}{2}$ inch	12 inch	3 inch
3 inch	15 inch	4 inch
3 inch	18 inch	6 inch

Made in standard 10 feet lengths.

### CORRUGATED RIDGE ROLL

2 $\frac{1}{2}$ " and 1 $\frac{1}{4}$ " Corrugations.



2 $\frac{1}{2}$ " corrugated, 26" long—covers 24".  
1 $\frac{1}{4}$ " corrugated, 25" long—covers 24".

Made in 12" girt and up.

### V-RIDGE CAP

Gauges 28 to 24



6 inch girt  
7 inch girt  
8 inch girt  
10 inch girt  
12 inch girt

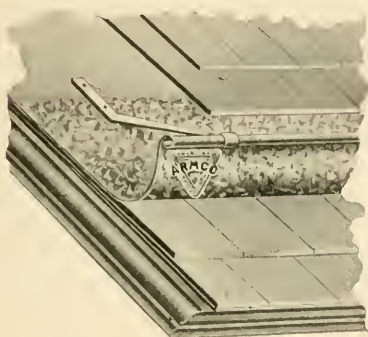


## ROOF GUTTERS

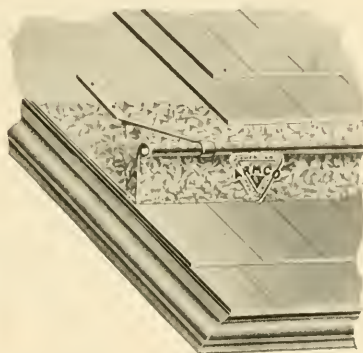
MADE OF 28 TO 24 GAUGE GALVANIZED IRON IN 10 FOOT LENGTHS

The nails used in fastening are not exposed. No wooden supports needed. In ordering always specify exact pitch of roof.

Style A in position.



Style B in position.



Style A



### SIZES

14 inch Girt,  $\frac{5}{8}$  inch Bead  
20 inch Girt,  $\frac{5}{8}$  inch Bead  
24 inch Girt,  $\frac{5}{8}$  inch Bead

Style B



### SIZES

15 inch Girt,  $\frac{5}{8}$  inch Bead  
20 inch Girt,  $\frac{5}{8}$  inch Bead  
24 inch Girt,  $\frac{5}{8}$  inch Bead

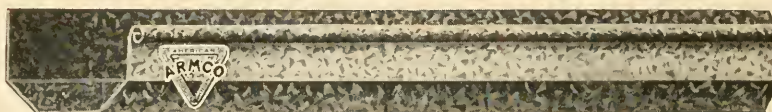
## BOX AND O. G. GUTTERS

MADE IN 10 FOOT LENGTHS OF GALVANIZED IRON

Gauges 28 to 24

Backs of Trough same height as Bead End unless otherwise specified.

### Box Gutter Style C



#### SIZES

Size	5 inches,	6 inches,	7 inches
Depth	3½ inches,	4¼ inches,	4½ inches
Girt	12 inches,	14 inches,	16 inches

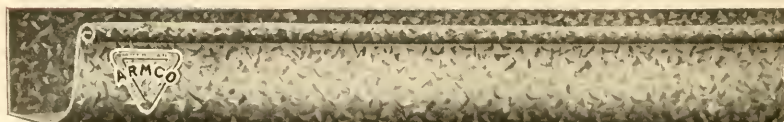
### Box Gutter Style D



#### SIZES

Size	6 inches,	7 inches,	8 inches
Depth	4 inches,	5 inches,	5¾ inches
Girt	15 inches,	18 inches,	20 inches

### O. G. Gutter Style E



#### SIZES

Size	6 inches,	7 inches,	8 inches
Depth	4½ inches,	5½ inches,	7 inches
Girt	15 inches,	18 inches,	22 inches

We can make any special style or size of O. G. Gutter to order.

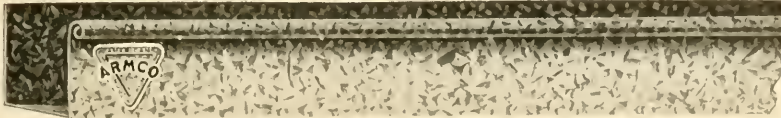


## BOX AND O. G. GUTTERS

Gauges 28 to 24

Backs of Trough same height as Bead End unless otherwise specified.

### Box Gutter Style F



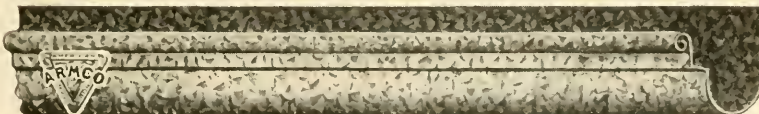
Size	6 inches,	7 inches,	8 inches
Depth	5½ inches,	6 inches,	6 inches
Girt	18 inches,	20 inches,	22 inches

### O. G. Gutter Style G



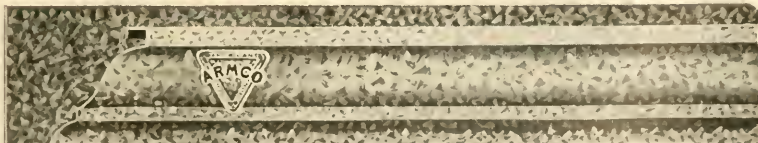
Size	6 inches,	7 inches,	8 inches
Depth	5½ inches,	6½ inches,	7 inches
Girt	18 inches,	20 inches,	22 inches

### O. G. Gutter Style H



Size	6 inches,	7 inches,	8 inches
Depth	4 inches,	4¾ inches,	5½ inches
Girt	14 inches,	16 inches,	18 inches

### O. G. Gutter Style J

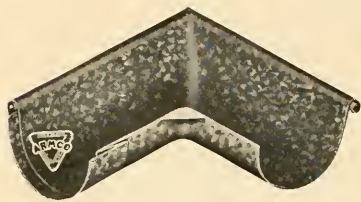


Size	6 inches,	7 inches,	9 inches
Depth	5¾ inches,	6½ inches,	8 inches
Girt	18 inches,	20 inches,	24 inches

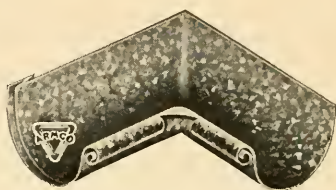
We can furnish O. G. Gutter with riveted stays and straps to hang, so that no extra hangers are needed, at the usual extra.



## MITRES



Outside Corner Mitre.



Inside Corner Mitre.

These Mitres are made complete, ready for use, both inside and outside Bead, either Slip or Lap Joint, Single or Double Bead.

### SIZES

#### No. 28 to 24 Galvanized Iron

##### LAP JOINT—

3 inch	6 inch
3½ inch	7 inch
4 inch	8 inch
5 inch	

##### SLIP JOINT—

3 inch	6 inch
3½ inch	7 inch
4 inch	8 inch
5 inch	

When ordering Slip Joint Mitres state whether right or left hand is wanted, and whether for "inner" or "outer" corner, otherwise half rights and half lefts, and half "inner" and half "outer" corner Mitres will be shipped.

## GUTTER END SECTIONS, SLIP ENDS AND TUBES



A



C



B

A—Shows a Section of Eave Trough, with Tube and End Soldered in.  
12 inch Section (A complete) furnished in Lap Joint.

B—Shows a Tube or Outlet.

C—Shows Slip Joint End-Piece. Can be used either right or left.

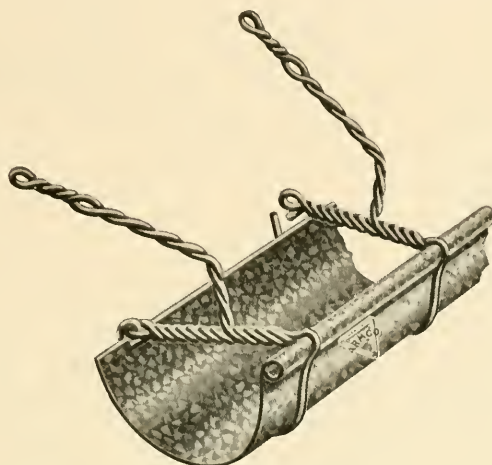
### SIZES

2 inch	5 inch
2½ inch	6 inch
3 inch	7 inch
3½ inch	8 inch
4 inch	

Gauges 28 to 24



## WIRE EAVES TROUGH HANGERS



Shows Hanger Applied.

These Hangers are made with either **Double** or **Single** Bead, and Double or Triple Twist Galvanized Wire.

No solder required.

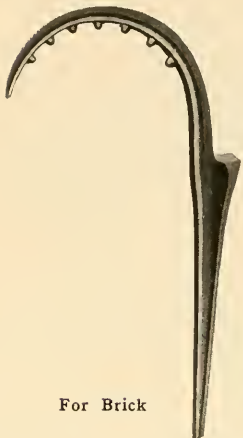
Cheap, strong and reliable. Easily applied. Made of the best Galvanized Wire of suitable gauge, according to size.

For all sizes up to and including 6 inch we send  $\frac{1}{2}$  inch Bead and for 7, 8 and 10 inch,  $\frac{5}{8}$  inch Bead, unless otherwise ordered.

### SIZES

3	inch, $\frac{1}{2}$ inch Bead
3½	inch, $\frac{1}{2}$ inch Bead
4	inch, $\frac{1}{2}$ inch Bead
4½	inch, $\frac{1}{2}$ inch Bead
5	inch, $\frac{1}{2}$ inch Bead
6	inch, $\frac{1}{2}$ inch Bead
7	inch, $\frac{5}{8}$ inch Bead
8	inch, $\frac{5}{8}$ inch Bead
10	inch, $\frac{5}{8}$ inch Bead

The Strongest and Best Wire Hanger made.

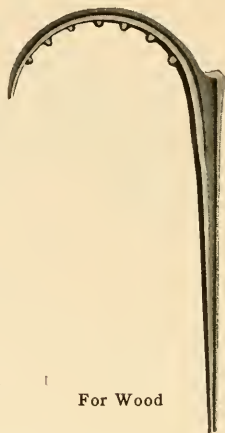


For Brick

## NEVER-SLIP CONDUCTOR HOOKS

Patented Nov. 12, 1895

MALLEABLE IRON, TINNED.



For Wood

Four reasons why NEVER-SLIP Hooks are the best.

They can be used for either Corrugated or Plain Round Pipe.

They hold the pipe firmly; can not slip as with smooth hooks.

The points simply dent in the pipe, doing no injury.

The points are arranged to catch the corrugations of corrugated pipe.

Jobbers and dealers can save carrying two styles in stock, as the "Never-Slip" takes the place of either Corrugated or Plain Sickle Hooks.

Made in 2, 2½, 3, 4, 5 and 6 inches, for wood or brick.

When ordering hooks for 2 inch round corrugated conductor, always specify 2½ inch, as that size pipe measures 2¾ inches in diameter.

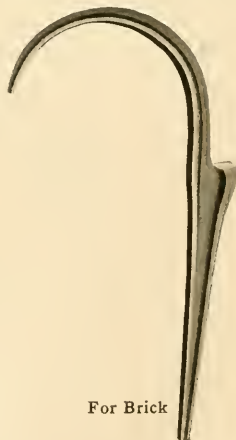


For Wood

## PLAIN CONDUCTOR HOOKS

MALLEABLE IRON

TINNED.

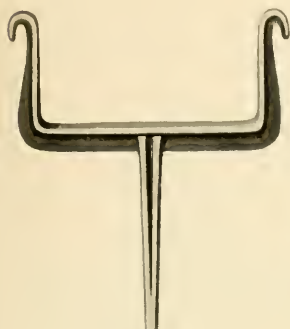


For Brick

Made in 2, 3, 4, 5 and 6 inches, for wood or brick.

These Hooks are made from the best of malleable iron, and are thoroughly tinned.

We carry a large stock of each size, and can fill all orders promptly.

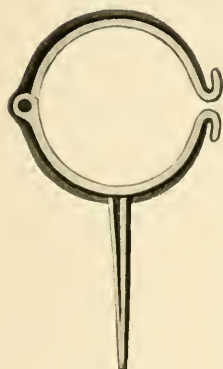


## CONDUCTOR HOOKS

### SQUARE WIRED HOOKS

Tinned.

Made in 2, 3, 4 and 5 inches, for wood or brick.

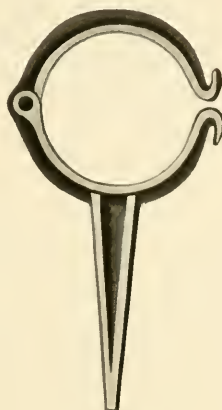


## ROUND HINGED HOOKS

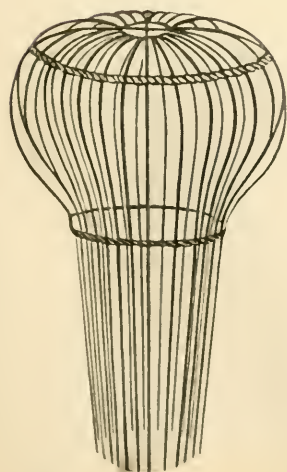
Tinned.

Made in 2, 3, 4, 5, and 6 inches,  
for wood or brick.

For Wood.



For Brick.



## GALVANIZED CONDUCTOR STRAINER

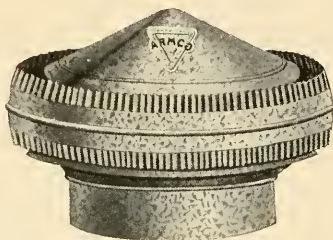
Should be used on all pipes conveying water  
to cisterns.

Made in 2, 3, 4, 5, and 6 inch.

# IN STORM OR CALM THE AMERICAN VENTILATOR

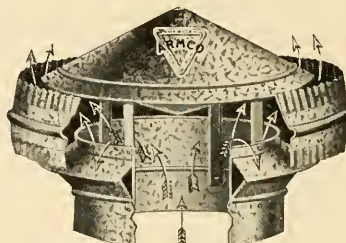
WILL FILL THE BILL

Complete View.



Patent Applied for.

Sectional View.



No Building is Complete Without it. Storm Proof, with No Back Draft.

The American Ventilator is guaranteed to exhaust more cubic feet of air per minute than any other storm-proof ventilator made. Houses, School-houses, Churches, Mills, Factories and Foundries use them with perfect results.

An American Ventilator on the roof of your house, ventilating the attic, may seem an insignificant thing, but it will prove invaluable, as it will give you relief from the unhealthy condition of close and overheated rooms. It will also keep the atmosphere in your residence cool and refreshing during the hot summer months.

## Sizes with Capacity in Square Inches

Size	Area	Size	Area
2 inch contains	31 $\frac{1}{4}$ square inch	22 inch contains	380 square inch
3 inch contains	7 square inch	24 inch contains	452 square inch
4 inch contains	12 $\frac{1}{2}$ square inch	26 inch contains	530 square inch
5 inch contains	19 $\frac{1}{2}$ square inch	28 inch contains	615 square inch
6 inch contains	28 $\frac{3}{4}$ square inch	30 inch contains	707 square inch
7 inch contains	38 $\frac{1}{2}$ square inch	32 inch contains	804 square inch
8 inch contains	50 $\frac{1}{4}$ square inch	34 inch contains	909 square inch
10 inch contains	78 square inch	36 inch contains	1018 square inch
12 inch contains	113 square inch	40 inch contains	1258 square inch
14 inch contains	154 square inch	44 inch contains	1520 square inch
16 inch contains	201 square inch	48 inch contains	1810 square inch
18 inch contains	245 square inch	54 inch contains	2290 square inch
20 inch contains	314 square inch	60 inch contains	2827 square inch

Copper Ventilators quoted on application.





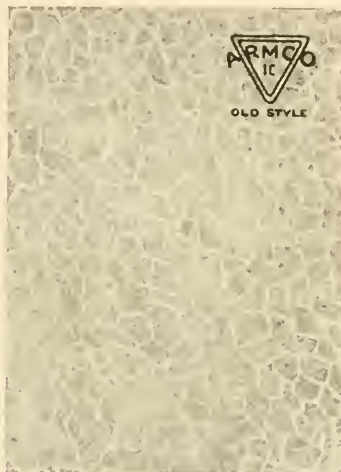
## "ARMCO AMERICAN INGOT IRON" TERNE PLATE



"ARMCO PALM OIL GOVT. PLATE"

"ARMCO OLD STYLE"

MADE FROM  
ARMCO GENUINE AMERICAN INGOT  
IRON



### THE REAL SECRET

The finger of pride is pointed to the old style Tin Roofing made over a century ago, still in service and apparently in as good condition as the day it was applied.

The manufacturers of today attribute its durability to the method by which the coating was applied, and claim their product just as good because, as they state, the same method is used.

Without detracting one iota from the great necessity of the proper mixture of lead and tin and the correct method of application, it is our opinion, well supported by facts and scientific data, that the durability of the coating on the old-fashioned Tin Roofing was due largely to the pure iron base manufactured and coated at that time.

It is obvious that the very thin sheet of base plate could not last a great number of years without being absolutely impervious to rust which it is not, no matter how good it may be. Yet it is an undisputed fact that the coating on steel cannot be compared to the coating on old-fashioned Iron, so great is its superiority.

#### WHY?

Because the coating on the old plates was uncontaminated by dissolved iron during its application.

If the U. S. Government and the National Board of Fire Underwriters specify that only the purest lead and tin should be used, they realize the great superiority and greater durability of the "The Pure" over "The Impure."

If it is imperative that the Tin and Lead be pure before being applied, it follows that it should be as pure as possible after being applied.



Now, this is exactly what it is not when applied to Steel—because it has been demonstrated that Steel will dissolve from four to five times as fast in molten metal as pure iron such as American Ingot Iron, which incidentally is the only iron manufactured today with a purity guaranteed to be uniform at all times and equal to the very pure iron of our forefathers. It is universally conceded that manganese and sulphur are deleterious impurities in iron or steel which are to be used in the manufacture of roofing sheets. In Armco American Ingot Iron **Manganese and Sulphur** are almost entirely eliminated.

The iron of our forefathers, being extremely pure, did not dissolve and throw off into the coating the impurities that prove so disastrous to the life of Steel Tin Roofing today.

American Ingot Iron, having the same or very much greater resistance to the dissolving action of molten metal than the pure iron of our forefathers, will receive even a purer and consequently more durable coating than the best iron that was ever made.

With this great advantage in its favor, every precaution and care is observed in the method of mixing the proper proportions of the purest lead and tin obtainable.

Men who have devoted their lives to tinning, who received their early training from practical fathers in Great Britain, have charge of the coating of American Ingot Iron.

The well-known and accepted Moorwood process, supervised by the most experienced and thoroughly competent masters of the art of applying a perfect coating, the guaranteed purity of the base metal, its resistance to molten metal, which, in turn, provides the purest possible coating, its natural and unequalled ductility, place American Ingot Iron Terne Plate as a peer, the acme of perfection and durability for Tin Roofs.

The American Rolling Mill Company values very highly its well deserved reputation for honesty, fairness and square dealing.

American Ingot Iron has earned by actual achievement the reputation of being not only the purest, but the most durable iron ever produced.

However, the reputation of both the Company and the Iron will reach its culmination and goal in the world wide popularity of "ARMCO PALM OIL GOVERNMENT PLATE" and "ARMCO OLD STYLE" Roofing Tin.

"ARMCO PALM OIL GOVERNMENT PLATE" is made from the purest and richest mixture of Tin and Lead by the pure lagos palm oil process throughout. Our own stamp of superiority and individuality predominates in this plate. Hand Made Palm Oil Process. The weight of coating is stamped on each sheet, together with the registered trade mark before the coating is applied. This Brand is made with 40 lbs. minimum coating on the sheets, subject to analysis. NOT 40 lbs. to box.

"ARMCO OLD STYLE" while having the same pure superior base metal and pure mixture will be of lighter coating. This plate will meet the demand for a bright dry or oil finish. While having a lighter coating it will excel the best so-called Iron Plates of heavier coatings, and is guaranteed to be equal in durability to *any* plate made by any other manufacturer irrespective of the base metal or weight of coating.



## THE UNITED STATES GOVERNMENT APPROVES:

For years the U. S. Government had been specifying and accepting only Genuine Charcoal Iron Terne Plates for its best and most particular work.

The introduction of American Ingot Iron Terne, "ARMCO PALM OIL GOVERNMENT PLATE" and its great durability, was immediately recognized by the Government, and the specifications changed to admit this product.

At last, a genuine pure iron plate, coated by the old style PURE PALM OIL PROCESS, the softest, most workable plate made, is procurable.

If it is recognized by the U. S. Government. Why not by you?

"ARMCO PALM OIL GOVERNMENT PLATE" Terne Plate made from genuine American Ingot Iron "fills the bill."

### Extract from U. S. Government Specifications:

I hereby certify of my own knowledge that this tin plate, bearing brand .....  
.....and submitted by.....

..... is made from I. C. gauge black iron sheets containing not more than 0.03 per cent of manganese, sulphur or carbon, and weighing not less than 7.5 ounces per square after allowing for variation in rolling and loss in pickling; that the sheets have been thoroughly cleaned and all traces of acid removed, and the sheets evenly and perfectly coated by the palm-oil process with a coating composed on only tin and lead, of which at least 25 per cent is tin; this coating will weigh not less than 40 pounds to the box of 112 sheets 20 by 28 inches.

.....  
(Manufacturers)

Sworn to before me this.....day of.....191 ..

.....  
(Notary Public)

If one of these sheets taken at random from the material delivered on the site shows a coating lighter than 1.40 ounces per square foot, or if the percentage of tin in the coating is found to be less than 25 per cent, the material will be rejected. Each sheet shall be stamped with the brand and weight of coating *before coated*.

Note the extremely low manganese content specified, and insist upon it in your work.



## ARMCO PORTABLE BUILDINGS

A



The foundation being complete, the sections are brought up and a start made on either of the rear corners, which, after being bolted together and anchored, are as substantial as the whole house, thus allowing you to go ahead without interference.

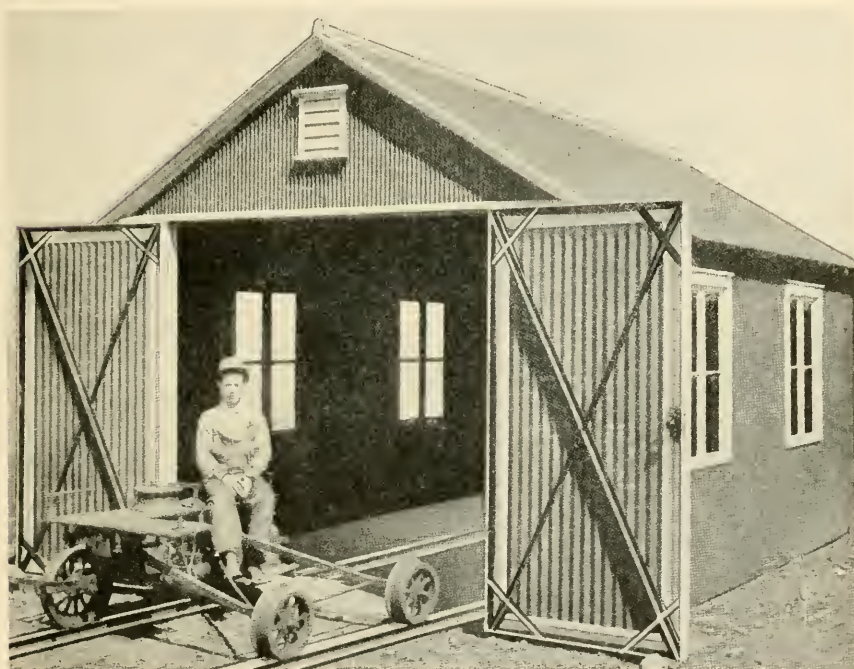




## ARMCO PORTABLE SECTION HOUSES

FOR STEAM AND ELECTRIC RAILROADS

B



When the road is in operation use the house for your section gangs' use as a tool house.

## ARMCO IRON FENCE POSTS

Metal fencing materials are rapidly taking the place of wood. The higher cost and lower quality of lumber of all kinds and the tendency toward abolishing fire risks are rapidly making the fence of rails, boards or pickets a thing of the past.

The considerations which have led to the wide adoption of galvanized wire for this purpose are just as applicable in the comparison of metal and wooden posts.

### WHY YOU SHOULD USE METAL POSTS.

Metal posts are much lighter and easier to transport and erect. Attaching the wire is the work of a moment. Such a fence presents a handsome appearance, and occupies the least possible space.

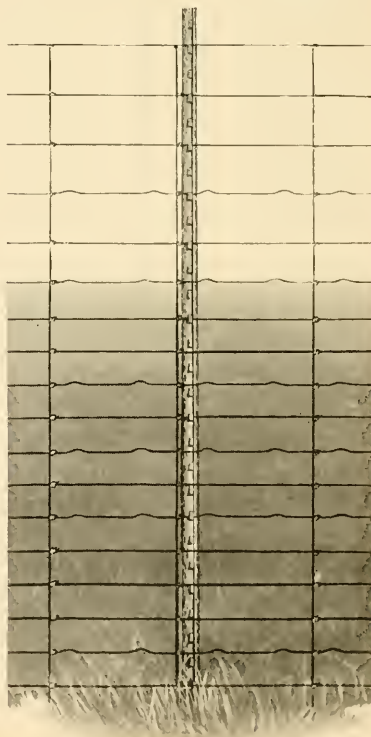
Section, showing location of lugs

### ARMCO IRON FOR LONG SERVICE

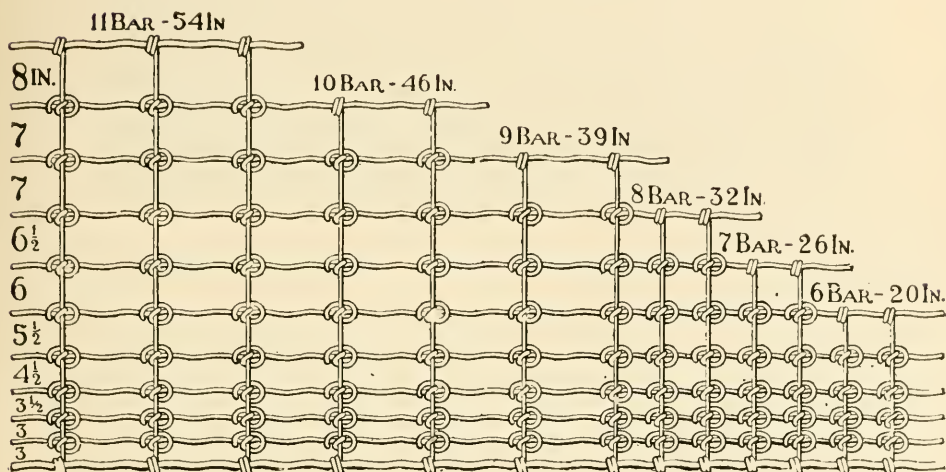
All these advantages, however, will be nullified if the post rusts off at the surface of the ground after a few years of use. Purity, Evenness and Solidity are the qualities which enable a metal to resist rust. That's why metal fence posts should be of Armco (American Ingot) Iron.

The Armco Iron Fence Post has the wire fastening lugs next the joint line, thus retaining, as nearly as possible, the full strength of the tube.

Write for prices and particulars.



## ARMCO WIRE FENCING



Galvanized wire is the modern and logical material with which to replace unsightly and rapidly deteriorating fence materials.

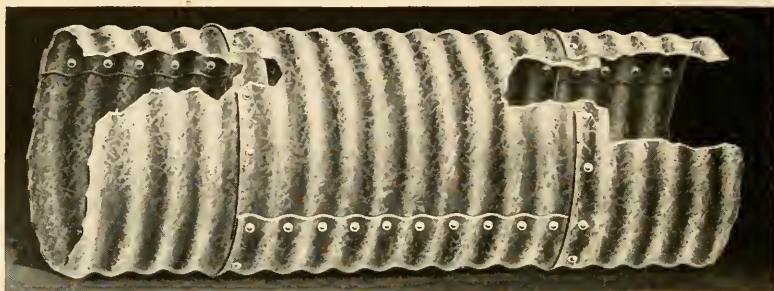
The cut shows a few of the numerous styles of **ARMCO** Wire Fencing. Enough others to enclose anything from a bull to a chick.

This use of Armco Iron is one of its later developments, though it was the rapid corrosion of barbed wire made from ordinary steel which led the United States Department of Agriculture to make the extended investigations which led finally to the development of Armco Iron.

Write for full information and prices.



## ARMCO AMERICAN INGOT IRON CULVERTS



**Proper Construction**—One of the most important things to consider in culvert pipe is construction.

The efficient method of joining the sections of Armco Iron Corrugated Culvert Pipe is clearly shown in the illustration above.

The end corrugation of each section laps over and fits into the end corrugation of the adjoining section. The effect of this is of course, to double the normal strength of pipe at the point where the joint is made.

It will also be noted that the sections are put together with "broken joints." That is, the line of rivets is not continuous throughout the pipe, but comes on **opposite** sides of the pipe in each connecting section, so that the strength is evenly distributed throughout.

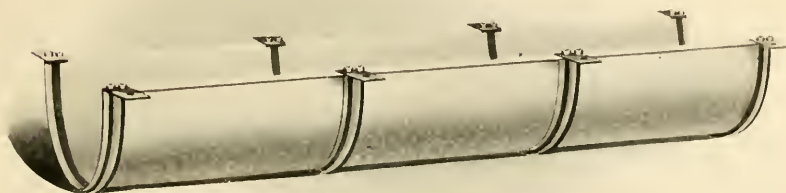
The overlap provided for the rivet seam is very wide, adding to the strength of the many large Armco Iron rivets used, the strength due to the friction of the connecting surfaces.



Armco Culverts under the tracks of the Boston & Maine Railway.



## THE ARMCO IRON SMOOTH FLUME



Made from ARMCO Iron throughout.

Irrigation cannot be carried on in many places simply by means of open canals and ditches, because the ground absorbs the water, and frequently, valleys and gulleys must be crossed. This necessitates the use of flumes.

The day of the wooden flume, like the day of the wooden bridge, has passed, and the irrigationists have learned, that a metal flume is not only usually cheaper in the first cost, but that it overcomes the incessant troubles, inefficiency and expense of a wooden flume.

However, a flume made of ordinary steel will rust very quickly. Leaks will very soon develop as a consequence. When an investment in flumes is made every engineer or owner wants his flume to withstand the corrosive elements of acidulated or slightly alkaline waters to the greatest possible extent.

ARMCO flumes are made from ARMCO Iron, 99.84% pure Iron, and possess 2 oz. per sq. ft. of zinc coating. This feature provides a flume in which the original cost is the only investment.

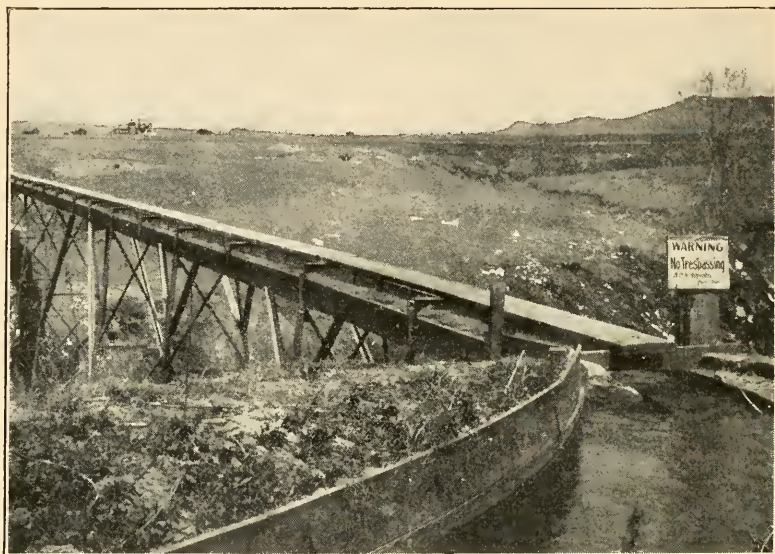
### CONSTRUCTION

The ARMCO flume is made of galvanized ARMCO sheets formed to a semicircle, clamped together and suspended by rods from the girders of the sub-structure.

The sheets have semi-circle beads or corrugations in each edge and the beads of adjacent sheets fit one into the other and the bead is filled with a half-round clamped iron rod.

The sheets are supported by round rods with threads and nuts on each end, and the rods either extended through the wooden carriers supported on the sub-structure, or extended through metal hanger plates attached to the top of the girders.

## SPECIAL FEATURES OF ARMCO FLUME



1. The joints are perfectly smooth, hence the coefficient of friction is very low. This insures a much higher carrying capacity than rough joints. (Note capacity table on page 60.)

2. It requires no cross bars on top on the small and medium sizes. This makes it much cheaper to erect, because it saves the cost of the wood cross bars and the cost of boring the holes for carrier rods. It eliminates the obstructions which collect branches, leaves, floating weeds, etc. Such obstructions often dam up the flume thereby causing the water to overflow the sides.

3. The strongest and most reliable joint possible, without the use of solder.

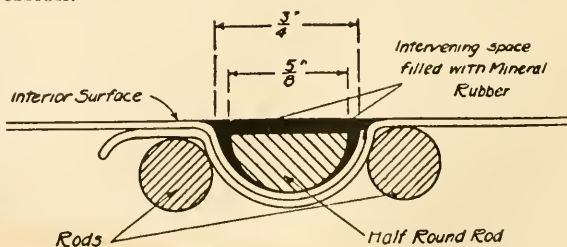
4. Each section takes care of its own expansion and contraction thereby making expansion joints unnecessary. The ARMCO flume always remains water-tight in hot and cold weather.

5. Round supporting rods directly in line with the joint rods, the former pulling the joints together with tension, and the latter pushing the joints together by compression.

6. ARMCO flume is most securely fastened to the substructure. When empty there is no danger of it being overturned.

7. The ARMCO flume is the easiest and simplest possible flume to install.

8. Used for irrigation and water power purposes.



~ Cross Section of the Armco Iron Flume Joint ~  
~ Actual Size ~



## CARRYING CAPACITY OF THE ARMCO IRON SMOOTH FLUME

AMOUNTS IN CUBIC FEET PER SECOND

No.	Diameter in Inches	Area in Square Feet	SLOPE IN FEET PER 1,000 FEET.											
			0.4	0.6	0.8	1.00	1.25	1.50	1.75	2.00	3.00	4.00	5.00	10.00
18	11.4	0.35	0.34	0.43	0.50	0.55	0.62	0.67	0.71	0.78	0.96	1.14	1.27	1.78
24	15.3	0.62	0.75	0.93	1.09	1.21	1.40	1.50	1.62	1.74	2.18	2.44	2.72	3.94
30	19.1	0.99	1.44	1.78	2.03	2.38	2.58	2.78	3.02	3.22	3.97	4.65	5.20	7.42
36	22.9	1.43	2.36	2.83	3.29	3.65	4.15	4.52	4.86	5.32	6.43	7.72	8.58	12.24
48	30.5	2.53	5.31	6.48	7.46	8.65	9.61	10.25	11.26	12.02	14.55	16.19	17.96	25.95
60	38.2	3.97	9.33	11.39	13.22	14.89	16.67	18.26	19.45	20.84	26.20	30.17	33.34	48.00
72	45.8	5.73	15.47	18.91	21.77	24.35	26.93	29.22	32.09	34.38	42.97	48.70	54.4	78.5
84	53.5	7.81	22.80	28.50	32.00	37.50	40.60	44.50	46.80	51.50	63.30	71.0	81.2	118.5
96	61.1	10.17	32.10	39.10	45.20	50.80	55.40	62.00	66.10	72.70	88.5	103.0	115.0	174.0
108	68.7	12.84	43.60	53.90	61.60	70.00	77.00	85.4	91.1	97.6	122.0	136.0	154.0	228.0
120*	76.4	15.90	60.4	73.1	83.5	93.0	104.9	116.0	124.0	133.5	167.0	187.0	209.0	304.0
132	84.0	19.24	76.0	93.3	107.7	121.8	134.7	146.2	157.8	171.2	207.8	244.0	273.0	388.0
144	91.7	22.92	96.2	118.0	135.2	155.8	171.9	187.9	201.7	217.7	265.8	307.0	343.0	462.0
156	99.3	26.87	118.2	145.0	168.0	188.0	211.0	234.0	247.0	266.0	322.0	376.0	424.0	605.0
168	106.9	31.12	143.0	174.0	205.0	227.0	252.0	277.0	299.0	317.0	387.0	451.0	507.0	732.0
180	114.6	35.80	172.0	207.0	243.0	272.0	300.0	331.0	349.0	372.0	469.0	537.0	601.0	879.0
192	122.2	40.69	201.0	244.0	287.0	317.0	354.0	390.0	415.0	455.0	549.0	630.0	712.0	1042.0
204	129.9	45.97	234.0	289.0	338.0	377.0	418.0	469.0	505.0	533.0	655.0	758.0	859.0	1217.0
216	137.5	51.28	277.0	328.0	384.0	435.0	502.0	523.0	584.0	615.0	754.0	871.0	979.0	1406.0
228	145.2	57.49	321.0	391.0	454.0	511.0	575.0	632.0	675.0	724.0	885.0	1006.0	1144.0	1637.0
240	152.8	63.68	371.0	464.0	519.0	590.0	650.0	720.0	780.0	828.0	1018.0	1159.0	1299.0	1874.0
252	160.4	70.18	420.0	519.0	589.0	667.0	744.0	814.0	884.0	947.0	1144.0	1312.0	1459.0	2116.0

The Table is figured for flume running full. An allowance should be made for free-board. Ten per cent. will cover the most extreme cases.

Based on Kutter's Formula:  $N = 0.011$ .

## ARMCO POLISHED SHEETS



These polished sheets are very smooth and uniform in color from one side to the other, as well as the full length. They are free from buckles, easy to work—decidedly better than polished steel in working qualities. This is the best material that can be secured for welding. Its superiority to steel on this one point is a sufficient reason for its choice for many high-class welded products.

Twenty gauge and heavier material is most successful for highly finished sheets. We do not supply lighter than twenty-six gauge.



## SHEET METAL SHIPMENT CRATES



Handling Sheet Metal in Metal Shipping Crates.

Metal Sheets and light metal products are exposed to danger from rough handling or careless stowing in shipping. Particularly is this the case where the goods go into export territory and are handled by cranes to and from the holds of vessels. Such material is usually protected by means of wooden crates or boxes; but these, in order to be effective, must be decidedly heavy and bulky. Both of these characteristics add seriously to the freight and the cost of handling.

We have developed a sheet metal crate for this purpose which is both lighter and stronger than one made from wood, and which occupies only about one-half the space. All our export shipments of this character are packed in these containers, with the result of practically abolishing damage and decidedly lowering ocean freight charges.

**Write for prices and full particulars.**



Shipment Packed in Metal Crates. Space Occupied about One-Half that of Wooden Crates. Patent Applied For.



## SOME USES FOR ARMCO AMERICAN INGOT IRON

Advertising Signs	Mine Cars
Arches	Milk Cans
Auto Body Sheets	Passenger and Freight Cars
Boiler Tubes	Polished Stove Sheets
Brick Pallets	Ranges
Cattle Guards	Range Boilers
Coal Chutes	Refrigerators
Conductor Pipe and Eaves Trough	Refrigerator Cars
Culverts	Roofing and Siding
Drip Pans	Stand Pipes
Enamel Ware	Sky Lights
Fence Posts	Smoke Stacks
Flumes	Stoves
Furnaces	Street Signs
Garbage Cans	Tanks
Gas Stoves	Telephone Wire
Gas Holders	Terne Plate
Gasoline Storage Tanks	Tin Plate
Grave Vaults	Transformer Tanks
Ice Cans	Vats
Metal Barrels	Ventilators
Metal Boats	Wash Tubs
Metal Caskets	Wash Boilers
Metal Lath	Water Pipe
Metal Shingles	Wire Fence
Metal Window Frames	

DO NOT CIRCULATE

